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This Magazine, being designed as a means for the interchange of Notes and Observations on Bird and Insect Life, appeals for its support to all who are interested in those departments of Natural History.



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No. 1.

Mississippi Valley Migration.

BIRD WAVES.

BY PROF. W. W. COOKE, MOORHEAD, MINN.

The idea of studying the bird waves was not thought of until migration last Spring had fairly commenced. No instructions were issued to the observers to note bird waves and only a few sent any specific notes on the subject. Under such adverse conditions, there would have been no attempt to write up the waves, were it not for the extreme importance of the subject. It is during these nights of bird waves that the bulk of migration occurs. This is especially true of Fall migration, but also to a large extent in the Spring. If then, we are to study migration successfully, we must study it when it is most active. Moreover, it is on bird waves that the action of the weather is most apparent, hence they furnish the readiest means for studying the relation between meteorology and migration.

The great drawback is the difficulty of accurately observing and reporting the bird waves. It is by far the hardest part of the field work in the study of migration, and requires more time and a more constant presence in the field than most observers can give.

The word "bird waves" has been used many times, but no meaning has been given to it. There are indeed, two meanings and two modes of study. We may consider a bird wave as an unusually large number of birds which, during one or more days, spread over a portion of our district.

Viewed in this light, the work before us is to ascertain the several species of birds constituting the wave, and the boundaries of the territory over which it passed.

Or, having learned that certain species were migrating together on a given day, we may consider these species as a wave and watch their northward progress day after day and week after week, now stopping or receding before the breath of a fierce norther, and now urged rapidly for-

ward by the gentle south wind, until they reach their Summer homes in the far north.

It is this second method which we will now employ, but it is applicable only to the earliest waves. It is only early in the season that these species which are together in the south keep together during their entire journey. In all the later waves the species migrating together change constantly from day to day.

The first wave last Spring consisted principally of Ducks, Geese, Blackbirds, Larks, Killdeer, Robins and Bluebirds. After being driven south by the extreme cold of the first week in January, they returned to St. Louis, 38th, on January 31; but went no farther, nor was any advance movement made until February 25, when a small portion moved one degree farther north. Then came a total standstill until March 10; but the full influence of the warm weather was not felt until the 13th to 15th of the month. The period from March 10 to 16, was one of great activity. During this time the birds of the first wave spread over the whole northern half of Illinois, the southern edge of Wisconsin, the whole of Iowa and Nebraska, while scouts followed up the Mississippi River almost to St. Paul. During the next few days, from March 17 to March 21, the advance was continued and the birds visited all the country to latitude 44°, with a few irregular appearances at points half a degree farther north, and one impetuous Goose clear up to St. Ansgar, Dak., 46°. By March 26, they have been reported from every station to 46°, with scouts of Ducks and Geese hunting up the Missouri and Red Rivers, almost to 48°.

From here northward, the observers are few and confined to the valley of the Red River of the north. Judging by the reports, it would seem that by this time the different species of the first wave were beginning to be widely separated. The Bluebird has fallen out entirely since we left latitude 45°; the Robins and Blackbirds still move onward, but they are several days behind the Ducks and Geese. The latter crossed the bound-

any line about April 1, reaching Two Rivers, Manitoba, 49³⁸ on April 3, while Robins and Blackbirds did not appear until the middle of the month.

If now we consider the speed at which this wave moved, we find that all the efforts of February were productive of no real forward movement; and that its true advance dates from March 9. During the next seven days, it passed to latitude 43°, or forty-three miles a day. This high rate is probably due to the previous retardation. The next five days it advanced to latitude 44°, or only fourteen miles a day. This slow rate may be due to the north winds and abundant rains which occurred on these days; or it may be that having moved rapidly to the limit of open water, their further progress was necessarily slow, until they were overtaken by the general advance of the season. To reach latitude 46° required five more days, being twenty-eight miles a day, and the next eight days, at thirty-one miles a day, brought them to latitude 49³⁸. It will be seen that the last three hundred and eighty miles were travelled at nearly the average speed, i. e., thirty miles a day. This is nearly twice as fast as the first wave of last year, which started early, progressed slowly, and reached its destination even later than that of this year.

In the preceding remarks we have intimated that the notes of last Spring were not altogether satisfactory. This was to have been expected from the fact that less than half of the observers had ever done any previous work of the kind. But what was done shows that there are in the Mississippi Valley, men sufficiently interested in the work to make it in the future a grand success. A very propitious beginning has been made, and we intend that this shall be but the beginning.

The particulars in which last Spring's notes were lacking, are principally in regard to the movements of the bulk, and the weather reports. In regard to the weather the fault is mine rather than the observers. It was my belief that the Signal Service reports would prove amply sufficient, and so the observers were told they need not pay much attention to weather reports. Experience has proved that I was wrong, and therefore the coming Spring it is desired that full weather reports be furnished by each observer. Instructions in regard to the form of the report have been printed and will be sent to each observer. Concerning the movements of the bulk, the problem is more difficult of solution. Theoretically the arrival of the first, and of the bulk, give us all the data we need, but practically, we are met by the difficulty, that less than twenty per cent. of the observers have the requisite ex-

perience, or can spare the necessary time to determine when the bulk do arrive. To obviate this difficulty, a slightly different series of observations will be requested in the forthcoming circular of the committee. With these changes and increased attention paid to the matter of bird waves, there ought to be nothing lacking in next Spring's work.

Of course, it is hoped that all the observers will be able to help on the work again next Spring, but in addition we are in need of many more new observers, and particularly in the following new localities: One more in southern Mississippi; one in northwestern Mississippi; two in central, two in northern Louisiana, and one at New Orleans; three in southeastern Texas, one near Corpus Christi, and one near Brownsville; two in southern and two in central Arkansas; one in eastern and one in western Indian Territory; two in southeastern, and one in northwestern Missouri; one in western Tennessee; one in western Kentucky; one in southern Illinois; several in western Kansas; and the same in western Nebraska; one in southwestern, and one in northwestern Iowa; as many new ones as possible in Wisconsin and Minnesota north of 45° latitude; three in the upper peninsular of Michigan; while the whole of the prairie region of Dakota is practically without observers. There is a rich field for observation in southwestern Dakota, and it is very desirable to get as full notes as possible from that district; while the Turtle Mountain region offers a very fine chance for the ornithologist, especially during the breeding season. Here then are about forty-five new observers needed in order to have every part of our immense district under close observation. The larger part of the places mentioned have been comparatively little visited and studied by ornithologists and will richly reward any one who devotes his spare time to the work. In this connection we cannot refrain from mentioning the excellent work done last Spring by some of the lady observers. One of the best and fullest report received came from a lady, while for clearness and beauty of finish it was excelled by none. Hence when we call for observers, we wish both sexes to be considered as addressed.

A year ago, a call for observers was issued in this magazine. The results far exceeded the expectations; some forty-five answers were received from the Mississippi Valley and about fifty from other parts of the United States. May this year prove as successful. Let all who are willing to aid, send their address, and full instructions will be furnished. Those outside of the Mississippi Valley will please apply to Dr. C. Hart Merriam, Locust Grove, N. Y.; others can obtain circulars from me.

Summer Birds of Locke, Michigan.

BY DR. H. A. ATKINS.

A list of the birds seen or captured in the township of Locke, in June, July and August, 1884. The asterisk (*) prefixed to a species indicates that it was known to breed during the season. The annotations have reference only to the year and months specified above:

- 1° Robin, (*Turdus migratorius*), abundant.
- 2° Wood Thrush, (*Turdus mustelinus*), rather scarce.
- 3° Alice's Thrush, (*Turdus swainsoni alicia*), one only seen, (Aug. 25.)
- 4° Cat Bird, (*Mimus carolinensis*), common.
- 5° Brown Thrush, (*Harpophynchus rufus*), rather common.
- 6° Bluebird, (*Sialia sialis*), common.
- 7° Black-capped Chickadee, (*Parus atricapillus*), rather common.
- 8° Carolina Chickadee, (*Parus atricapillus carolinensis*), rare.
- 9° White-bellied Nuthatch, (*Sitta carolinensis*), common.
- 10° House Wren, (*Troglodytes domestica*), rare.
- 11° Long-billed Marsh Wren, (*Telmatodytes palustris*), scarce.
- 12° Horned Lark, (*Eremophila alpestris*), not common.
- 13° Black and White Creeper, (*Mniotilta varia*), not common.
- 14° Golden-winged Warbler, (*Helminthophaga chrysoptera*), rare.
- 15° Yellow Warbler, (*Dendroica aestiva*), common.
- 16° Blue Warbler, (*Dendroica caerulescens*), rare.
- 17° Chestnut-sided Warbler, (*Dendroica pennsylvanica*), rare.
- 18° Golden-crowned Thrush, (*Sturus auricapillus*), rather common.
- 19° Large-billed Water Thrush, (*Siurus motacilla*), rather common.
- 20° Maryland Yellow-throat, (*Geothlypis trichas*), rather common.
- 21° Hooded Warbler, (*Mniotilta v. mitratus*), common.
- 22° Redstart, (*Setophaga ruticilla*), rare.
- 23° Scarlet Tanager, (*Pyrauga rubra*), common.
- 24° Barn Swallow, (*Hirundo horreorum*), abundant.
- 25° White-bellied Swallow, (*Tachycineta bicolor*), not common.
- 26° Cliff Swallow, (*Petrochelidon lunifrons*), not common.
- 27° Cedar Bird, (*Ampelis cedrorum*), rare.
- 28° Red-eyed Vireo, (*Vireo olivaceus*), common.
- 29° Warbling Vireo, (*Vireo gilvus*), common. One nest found; the first ever met with in the township.
- 30° Yellow-throated Vireo, (*Vireo flavifrons*), rather common.
- 31° Great Northern Shrike, (*Lanius borealis*), rare.
- 32° Yellow Bird, (*Chrysomitris tristis*), abundant.
- 33° Bay-winged Bunting, (*Poocetes gramineus*), abundant.
- 34° Song Sparrow, (*Melospiza melodia*), abundant.
- 35° Chipping Sparrow, (*Spizella socialis*), abundant.
- 36° Field Sparrow, (*Spizella pusilla*), abundant.
- 37° English Sparrow, (*Passer domesticus*), not common.
- 38° Rose-breasted Grosbeak, (*Goniaphea ludoviciana*), scarce.
- 39° Indigo Bird, (*Cyanospiza cyanea*), common.
- 40° Towhee Bunting, (*Pipilo erythrophthalmus*), abundant. First and only nest found was on the 4th of August, was built in a small clump of briars; height above ground, 3 feet 5 inches.
- 41° Bobolink, (*Dolichonyx oryzivorus*), common.

- 42° Cow Bunting, (*Molothrus ater*), common.
- 43° Red-winged Blackbird, (*Agelaius phoeniceus*), abundant.
- 44° Meadow Lark, (*Sturnella magna*), common.
- 45° Baltimore Oriole, (*Icterus baltimore*), not common.
- 46° Purple Grackle, (*Quiscalus purpurus*), common.
- 47° Crow, (*Corvus americanus*), abundant.
- 48° Blue Jay, (*Cyanurus cristatus*), common.
- 49° Kingbird, (*Tyrannus carolinensis*), rather common.
- 50° Great-crested Flycatcher, (*Mgiarctus crinitus*), rather common.
- 51° Phoebe Bird, (*Sayornis fuscus*), abundant.
- 52° Wood Pewee, (*Contopus virens*), rather common.
- 53° Acadian Flycatcher, (*Empidonax acadicus*), rare.
- 54° Traill's Flycatcher, (*Empidonax traillii*), rather common.
- 55° Whip-poor-will, (*Antrostomus vociferus*), common.
- 56° Night Hawk, (*Chordeiles virginianus*), rare.
- 57° Chimney Swallow, (*Chetura pelagica*), common.
- 58° Ruby-throated Hummingbird, (*Trochilus colubris*), common.
- 59° Kingfisher, (*Ceryle alcyon*), rare.
- 60° Black-billed Cuckoo, (*Coccyzus erythrophthalmus*), rather common.
- 61° Yellow-billed Cuckoo, (*Coccyzus americanus*), rather common.
- 62° Pileated Woodpecker, (*Hylotinus pileatus*), rare.
- 63° Hairy Woodpecker, (*Picus villosus*), common.
- 64° Downy Woodpecker, (*Picus pubescens*), common.
- 65° Yellow-bellied Woodpecker, (*Sphyrapicus varius*), not common.
- 66° Carolina Woodpecker, (*Centurus carolinus*), rare.
- 67° Red-headed Woodpecker, (*Melanerpes erythrocephalus*), common.
- 68° Golden-winged Woodpecker, (*Colaptes auratus*), common.
- 69° Barred Owl, (*Syrnium nebulosum*), rare.
- 70° Marsh Hawk, (*Circus cyaneus hudsonius*), rare.
- 71° Sparrow Hawk, (*Falco sparverius*), rare.
- 72° Red-shouldered Buzzard, (*Buteo lineatus*), common.
- 73° Wild Pigeon, (*Ectopistes migratorius*), one only seen during summer.
- 74° Mourning Dove, (*Zenaidura carolinensis*), rare.
- 75° Ruffed Grouse, (*Bonasa umbellus*), not common.
- 76° Quail, (*Ortyx virginianus*), not common.
- 77° Killdeer, (*Spizella pusilla*), not common.
- 78° Semipalmated Sandpiper, (*Ereunetes pusillus*), one only (Aug. 13.), the first appearance of this species in this township.
- 79° Solitary Sandpiper, (*Totanus solitarius*), one only seen, (Aug. 13.) the first one of the season.
- 80° Great Blue Heron, (*Ardea herodias*), rare.
- 81° Stake Driver, (*Botaurus lentiginosus*), rare.
- 82° Sandhill Crane, (*Grus canadensis*), rare.

Notes from Silver City, N. M.

BY CHARLES H. MARSH.

To my list of birds from Silver City, for last June, I should have added the Arizona Jay, one specimen of which was taken early in the month. Early in September, I took a trip to the Carolina Divide, some twenty miles from Silver City, in the expectation of securing some rarities for my collection, but unfortunately the rainy season set in, and after four days of long-continued showers, I was obliged to take my leave. I however improved the brief intervals of sunshine, as best I could, and did not return

entirely empty handed. Our tent was pitched in a grove of oaks near the top of the Divide, which, all through the day, resounded to the harsh cries of the California Woodpecker. Scores of Rufous Humming-birds darted hither and thither, now pausing over some bright-hued flower, or perching daintily on the branch of an oak or pine, now darting with a sharp zip before us as we sat at our meals and poising in mid-air to gaze curiously at the intruders on their privacy. Slender-billed Nuthatches dodged from side to side of the hugh pine trunks, while in the brush lining the banks of a tiny stream, could be seen the bright yellow plumage of the Pileolated Warbler. In a side canon some little distance from our camp I shot two Red-faced Warblers, high up in the branches of a quaking aspen, and not far distant, a young Grace's Warbler. On our homeward trip I secured a few Band-tailed Pigeons, Gambel's, Scaled and Messena Quail and other more common birds.

With the advent of cold weather the Titmice are once more with us, and within the past few days I have secured some fine specimens of the Gray and Wollweber's Titmice, as well as of the Lead-colored Tit. I am daily on the lookout for the Black-eared Tits, a few specimens of which I shot last Winter. In the cactus on the plains are the Curve-billed Thrushes and Cactus Wrens; among the Scrub Oak lining the ridges the Crissal Thrush, Arctic and Mexican Bluebirds, Woodhouse's Jays, Mexican Flickers, Oregon, Pink-sided and Gray-headed Snowbirds, while flocks of Mexican Shore Larks, McCown's Buntings and Chestnut-collared Longspurs may be seen here and there upon the prairie. But space will not permit me to enumerate a fraction of our Winter birds, and seldom do I return from a collecting trip without a well-filled bag.

Florida Bird Life.

BY E. M. HASBROUCK, PALATKA, FLA.

For the last year I have had an intense desire to visit Florida, and to get a glimpse of the bird-life which it afforded, yet scarcely daring to dream that my fond hope would be realized, at least not for a long time to come. But fate decreed otherwise. Oct. 9, 1884, found me on board a steamer in New York harbor, bound to Palatka, Fla. After a delightful sail of three days, I arrived at Savannah, thence by rail to Palatka on a smoky little train that stopped every three or four miles, to let a cow get off the track, or at some little station that consisted of a house with a shingle nailed on to a post, telling the name.

But at length I arrived at Palatka, a pleasant little town, situated on the St. Johns river, 75 miles from Jacksonville. After spending a few days in securing rooms, and getting everything prepared for a season's study and collecting, I took one of the many little steamers that ply on the river, and started for "Crystal Lake," situated about 30 miles back in the woods. I arrived at my journey's end about 6 o'clock, and during the evening prepared everything for two weeks' studying. I retired early and was soon lost in slumber. Awaking just as the first rays of daylight were peeping into my room, I dressed as hurriedly as possible, and catching up my gun and bag containing note book and pencil, I started forth for my first glimpse of Southern birds. Making my way through the orange grove towards the lake, I came upon a number of Mourning Doves feeding on the ground, or perching on the bare branches of a Mulberry tree. On the top branch sat a Sparrow Hawk, no doubt pondering in his mind whether to make a raid on them, or to have for breakfast some one of the many little Warblers that inhabit the bushes near by. Blue Jays, and Mocking Birds are numerous, while from the woods came the clear mellow whistle of Quail, not from one direction, but from every quarter of the woods, showing that this country is plentifully stocked with the bird. I have not yet heard them utter the "Bob White" for which they are so famous, but instead, it is "Bob-by-White" repeated several times in succession, with the accent sharp on the last syllable. Soon I reached the "lake" which is nothing but a small pond, covered with patches of lily pads here and there, over which the White-bellied Swallow was skimming in considerable numbers. On its surface were a number of species of water fowl, among which I identified the following:—Wood Duck, Coot, Mud Hen and Hell Diver. Rounding a curve, I came suddenly upon a number of Little Blue or White Herons, feeding on the shore. I watched them for some time, until they took alarm and flew away to some other part of the lake. Hearing a "chip" in the bushes to my left, I see a little form hopping about, busily engaged in gleaning the insects from the leaves. Not recognizing it, I resort to the gun, to find it to be a male Maryland Yellow-throat. I have not heard his song since I have been here, though I have met with him several times. In a certain clump of trees, I find dozens of the Red-bellied Woodpeckers, feeding on the larvæ found in the dead pine stumps. The Downy Woodpecker is also quite numerous, and the Hairy is frequently met with. One bird is ever present in more or less numbers, the Turkey Buzzard, sailing about

constantly in broad circles. You may see them, now close to the ground, now skimming the tops of the trees, and still others mere specks in the sky. It is an interesting sight to see hundreds of these useful scavengers, gathered about some dead carcass, busily engaged in devouring it, and yet to those not interested in bird life, scarcely anything more disgusting is to be found. In some of my articles I will endeavor to describe what I have witnessed more than once, but my present intention is simply to allude to a few of the birds met with in a day's ramble. The Meadow Lark is here, and utters the same note as he does when in the pleasant fields of Central New York, but somehow, it seems to lack the life and vigor here which it expresses when in the North. It is frequently to be met with on some little knoll in the woods, and may be approached within a few yards. The Cardinal Redbird, is also quite numerous, and I meet him every little while, mostly in brier patches near some house. I have so far failed to catch more than one note, which sounds very much like that of the familiar Chipping Sparrow. I also identified the Varied Creeping Warbler and Black-throated Blue.

I made many notes of interest which next month, I will try and weave into something worthy of the attention of the readers of the O. and O.

Rose-breasted Grosbeak.

BY JOS. M. WADE, BOSTON, MASS.

My Rose-breasted Grosbeak "Jack," so often mentioned in your columns, commenced his song this year Jan. 28, and within a few weeks was in full song, which was continued nearly up to October, after which he sang considerable, but in a lower key. This year he has sung his own notes less than ever; in fact very little of his own free wild notes. But he has been quite a mimic, imitating other birds, but being in a changed tone, it was always pleasing. He imitated more particularly the Wren, the Bluebird and the Song Sparrow, and succeeded very well—enough so to bring passers-by to a halt to listen. He shed the first three long feathers July 13, and continued for six weeks or two months, singing all the while. His eating capacity is something remarkable. It is my impression that there are days in which he eats his weight in celery, beside his seed and other food. He will eat or drink anything that he sees the family eating or drinking—from medicine, beer, liquor, to sour kroust. He can be persuaded to twitter and trill any time during the year. His affectionate performances are something remarkable, but he will not exhib-

it before strangers. He eats green peas and opens the pods himself, sometimes eating the pods entire, or rather the succulent part. This he always does with string beans. Grapes he takes on his bill and will sometimes hold one on his elevated beak until he has about finished a whole grape except the skin. It is always interesting to see him place a grape or pea on the perch. He will do it with ease, when it seems impossible. He never uses his feet in eating. He is now in his seventh year, and has never lost the rose breast when putting on the female plumage in the Fall. He has never been without several kinds of food in his cage at the same time. He is now, Nov. 23, gradually moulting for his early Spring song. In this moult he never sheds his long feathers, simply puts on his male plumage. The rose breast which came with the nest feathers has never been changed, except to become slightly speckled in the Fall.

July 3d, 1883, he was stolen from his cage on the piazza when in full song. Several days afterwards, I found "Jack" in a bird store in Boston—a sad looking bird.

A New Species of Field Sparrow.

(*Spizella nortenhi?*)

BY CHARLES H. MARSH, SILVER CITY, N. M.

On the 16th of June, I shot on the flat near the town a new species of Field Sparrow, *Spizella nortenhi*. The bird was an adult male with plumage slightly worn; crown light fulvous-brown, with rufous tinge and no trace of lighter median line. Entire side of the head ash-gray, including the anterior part of the forehead and whole superciliary and supra-auricular region. Eyelids white, forming a distinct orbital ring. Bill cinnamon-brown. Back and scapulars light fulvous-brown, broadly streaked with black. Rump and upper tail-coverts brownish ash-gray, latter with medial streaks of dusky. Wings dusky, feathers edged with light grayish-brown; middle coverts tipped with whitish buff; chin and throat grayish-white; lower parts brownish-white deeper in the jugulum; crissum and lining of the wings nearly pure white. Legs and feet horn-brown. About the size of the Eastern Field Sparrow.

[We question the name given by Mr. Marsh, having no knowledge of its derivation.—Ed.]

TAXIDERMAL NOTE.—Mr. William Brewster suggests nearly boiling hot water, poured through a funnel in the stuffing between the edges of the skin, as a ready and efficient means of softening a stuffed bird which it is desired to turn into a "skin."

A Catalogue of the Birds of Kalamazoo County, Michigan.

BY DR. MORRIS GIBBS.—PART I.

Kalamazoo County is embraced within 42° 5' and 42° 25' north latitude, and 8° 20' and 8° 45' west longitude. The general aspect of the land is level, although ranges of hills are found in many parts. The soil within the valley of the Kalamazoo river is a dark sandy loam, while heavy clay and sandy regions are found at many points. The geographical or geological features are in nowise unusual. Many small streams, draining at least twenty lakes, flow into the river, or south into the St. Joseph.

The valley of the Kalamazoo river is sunk below the general level of the country to nearly one hundred feet, while some of the higher elevations are quite one hundred and fifty feet above the river.

The city of Kalamazoo, situated nearly in the center of the county, is built upon an extensive Burr Oak plain, while the surrounding hills are covered with Hickory, White Oak, Black Oak, Beech and Maple. The river bed is covered with a growth of Black and White Ash, Sycamore, Basswood and Elm. Formerly Whitewood and Walnut were found plentifully. Numerous Tamarack swamps are found in the courses of the smaller streams.

Kalamazoo is situated about midway between Chicago and Detroit, and about thirty-five miles from Lake Michigan. The short description given here may afford some idea as to the merits of the county as a collecting section, and those who have studied the topography of other counties may readily tell what the character of our avian fauna is.

The notes presented are principally the result of my own efforts during the last eighteen years. I am indebted, however, to B. F. Syke and F. H. Chapin for valuable notes.

The numbers in brackets are those of the Smithsonian Check List.

1. [1.] *Hylocichla mustelina* (Gmel.) Baird. Wood Thrush.—Abundant Spring and Summer resident. Arrives from April 29 to May 4. The eggs are laid from May 15 to June 10.

2. [2.] *Hylocichla fuscescens* (Steph.) Baird. Wilson's Thrush; Veery.—One of the last of the family to make its appearance. Arrives from May 1 to 10. A few remain to breed. Occasionally lay five eggs; usually four.

3. [3.] *Hylocichla aliciae*. Baird. Gray-cheeked Thrush.—Once taken in the county by Mr. Chapin.

4. [4a.] *Hylocichla ustulata swainsoni* (Caban.) Ridgw. Olive-backed Thrush.—A rather common migrant, still the rarest member of the family here. Occasionally remain to breed. One nest secured. Arrives in the early part of May. A retiring bird and rarely seen.

5. [5b.] *Hylocichla ustulata pallasi* (Cab.) Ridgw. Hermit Thrush.—A common migrant. Arrives from March 20 to April 10. A great loiterer. Departs as late as Nov. 1, occasionally. Not known to breed.

7. [7.] *Merula migratoria* (Linn.) Sw. & Rich. American Robin.—Our best known bird. Occasionally found throughout the year.

7. [12.] *Galeoscoptes carolinensis* (Linn.) Cab. Catbird.—Abounds Spring and Summer. Breeds. Arrives the last week of April or first of May. Eggs laid from May 10 to 20.

8. [13.] *Harporhynchus rufus* (Linn.) Caban. Brown Thrasher.—Arrives from April 6 to 20. Departs about Sept. 20. Breeds abundantly.

9. [22.] *Sialia sialis* (Linn.) Haldem. Eastern Bluebird.—The earliest recorded arrival is Feb. 8. Generally arrives from March 10 to 20. Abundant Summer resident. Breeds. Departs in November generally. Occasionally not till December.

10. [27.] *Poliotilta carulea* (Linn.) Scl. Blue-gray Gnatcatcher.—Earliest recorded arrival in my notes is April 18. Begins building about May 10. Eggs usually laid about May 28. Abundant in White Oak woods.

11. [30.] *Regulus calendula* (Linn.) Licht. Ruby-crowned Kinglet.—Generally arrive about April 2; sometimes much earlier. Abundant migrant. Depart usually in early November, but occasionally in late November.

12. [33.] *Regulus satrapa* (Licht.) Golden-crowned Kinglet.—May remain in the county during mild Winters. Frequently observed in February in dense Tamarack swamps. Abundant migrant. Departs in October or November.

13. [36.] *Lophophanes bicolor* (Linn.) Bp. Tufted Titmouse.—Observed in the county by Mr. Syke.

14. [41.] *Parus atricapillus* (Linn.) Black-capped Chickadee.—A resident. Breeds abundantly from April 25 to June 15. Two broods probably reared in a season. One nest found containing eight eggs. Usual number six or seven.

15. [51.] *Sitta carolinensis* Gmel. White-bellied Nuthatch.—An abundant resident, but most common Spring and Fall. A few breed. Nest placed often in the dead limb of a tall tree, or again in a knot-hole in clapboard of house in the city.

16. [52.] *Sitta canadensis* Linn. Red-bellied Nuthatch.—Migrant, and occasionally a Winter resident. Remains with us sometimes as late as June 1. A quaint fellow. Not so familiar as the last.

17. [53.] *Certhia familiaris rufa* (Bartr.) Ridgw. Brown Creeper.—A common migrant. Often a Winter resident. A rare Summer resident.

18. [60.] *Thryothorus ludovicianus* (Gm.) Bp. Carolina Wren.—I feel positive that I once saw an individual of this species. A large Wren with a loud song. Known by several collectors in the State.

19. [61.] *Thryomanes bewickii* (Aud.) Baird. Bewick's Wren.—Have only taken this species once, May 5, 1877. Two others have been secured. Not known to breed.

20. [63.] *Troglodytes aedon* Vieill. House Wren.—A common resident from May 5 to Sept. 15. Arrives occasionally as early as April 20. Breeds plentifully. Twenty years ago a rare species here.

21. [65.] *Anorthura troglodytes hyemalis* (Vieill.) Cones. Winter Wren.—The earliest date of arrival is March 19. It is to be doubted if the bird ever remains throughout the Winter. A few remain during Summer. Common migrant.

22. [67.] *Telmatodytes palustris* (Wils.) Brd. Long-billed Marsh Wren.—A common species. A great many breed each year. Nests found at Gull, East and Sugar-loaf Lakes.

23. [68.] *Cistothorus stellaris* (Licht.) Caban. Short-billed Marsh Wren.—Only rarely met with. A few taken. Mr. Syke once found young.

Some Californian Raptores.

BY A. L. PARKHURST, SAN JOSE, CAL.—PART I.

FEB. 22, 1884. Found a nest of the American Barn Owl with five eggs so nearly hatched that I could not save them. The nest was a hole in the face of a steep bank.

MARCH 29. Found a nest of the Western Red-tail with three eggs partly incubated. The female did not leave the nest until frightened off by a shower of fine clods and dirt. After leaving the nest she kept well out of gun-shot, alighting in oak trees in the vicinity and venting her wrath and indignation by loud shrill screams.

APRIL 6. Found another nest of Western Red-tail with three large, fine, well marked eggs. The female left the nest just as I got under the tree and flew around from one tree to another with her mate, each keeping well out of range and continually uttering their loud screaming notes.

APRIL 7. Took a set of three handsome eggs

from a White-tailed Kite, (*Elanus glaucus*) which were ready on the 4th, but were left over for another egg. The nest was one built this year of fine twigs, and stubble pulled up by the roots. It was lined with stubble and grass and was in the same tree from which I took a set of four last year. A large live oak near this tree (which is also a live oak,) bears evidence that they have nested here for several years past and that they build a new nest each season. This tree also contains a very large Buteo's nest and when I first visited the place March 6, 1883, a pair of Buteos lingered in a large dead Sycamore near their house. As I approached nearer, I saw the male Kite leave his perch in the top of a Black Oak, and dash toward the tree in which the Buteos were sitting. The Buteos however seemed peaceably inclined and left the place without so much as attempting to assert their rights.

I visited the place several times after this in search of the Kite's eggs which I expected to find in the Buteo's nest. The male was always found perched in the top of the Black Oak sometimes in company with his mate. In due time the female began to sit and yet the bird was so wary that I could not catch her in the act of leaving her nest, which she always did at my approach. April 6, I stayed in the vicinity longer than usual and had just started for home discouraged, when as I approached the tree, in which the nest was placed, from an unusual quarter, I was suddenly startled by the bird leaving the nest when I was within a few yards of the tree. She immediately joined her mate on the Black Oak, and together they witnessed the robbery of their home. As I left the place, the male swooped toward me as if half inclined to make an attack.

In a week or so the Kites left, and were succeeded by a pair of Buteos who patched up their old home. On May 13, I climbed to their nest in the presence of the old bird, who, thinking perhaps that I was "too familiar on short acquaintance" concluded to take up quarters elsewhere.

The Kites however were not so easily disheartened and this year returned. The male still held his old perch but not so constantly as last year. The female however betook herself to the tree in which she was building and remained there. Although I walked around the tree and threw sticks into it, she did not fly until I began to climb in order to visit last year's nest.

The eggs are nearly elliptical, about the size and shape of the Long-eared Owls. In color they closely resemble the eggs of the Osprey.

THE ORNITHOLOGIST

—AND—

OÖLOGIST.

A MONTHLY MAGAZINE OF
NATURAL HISTORY,

ESPECIALLY DEVOTED TO THE STUDY OF

BIRDS,

THEIR NESTS AND EGGS.

DESIGNED AS A MEANS FOR THE INTERCHANGE OF NOTES
AND OBSERVATIONS ON BIRD LIFE.

FRANK B. WEBSTER, Publisher,
PAWTUCKET, R. I.

Editor's Notes.

To our readers—one and all—we wish a Happy New Year—a year of increased usefulness, increased knowledge and with these increased happiness.

For the proper conduct of the Migration Observations in the Mississippi Valley, an increase in the number of observers is necessary. We desire to call attention to Prof. Cooke's list of localities where such are required. It is a matter of much difficulty to get at those who could, if they would, render the assistance needed, and the coöperation of all who take an interest in the investigation of Bird Life is desired for this end. If any of our subscribers know of suitable parties in the districts named, they will assist the work by sending the names to Prof. Cooke, in order that personal endeavor may be made to enlist their services.

We insert a letter from an old subscriber on one of the most important subjects that can engage the attention of Bird Collectors. It is of course much to be desired that a non-poisonous "Dermal Preservative" could be found, but the most important point is that it should be truly a *Preservative*. On this subject, the testimony of some of our veteran Collectors would assist greatly to definite conclusion.

We have frequently been applied to for information as to what course has to be adopted to obtain a permit to collect eggs and skins of birds. To answer these questions is very difficult—each State in the Union has its own laws which are constantly changing—and it is almost impossible to get correct information except on the spot. It will give us pleasure to receive from friends in each of the States a brief epitome of the local regulations on the point, which we will print in an early number. We can sympathize with those who find themselves threatened with indefinite penalties when in pursuit of ornithological knowledge, while being of opinion that indiscriminate and needless bird-killing and egg-collecting are to be deprecated. We cannot find room for the voluminous bird laws of each State, and only desire concise answers to the question as given.

Some Michigan Notes, with an Addition to its Fauna.

BY N. A. EDDY, BAY CITY, MICH.

The Glossy Ibis, (*Plegadis falcinellus var. ordii*), is such a rare bird, so irregular in its distribution and so erratic in its wanderings, that any record of its appearance must be of interest and value. Seen in Texas, taken in several of the Atlantic coast States and at Prince Edward's Island, with a solitary appearance in southern Illinois—a single individual is now seen making its way over the Saginaw Bay—a young bird wearied with long flight it settles down in one of the numerous marshes along the shore for food and rest, only to be soon brought to bay and to make for its species its first record in our State. I am indebted for the knowledge of this interesting capture to Mr. F. J. Jennison of this city, who had but recently kindly consented to furnish me with such notes as might come under his observation, and I quote from his letter for particulars: "The Ibis was killed Oct. 6th, ('84), just west of the town here, in a piece of marsh almost solid enough to walk on—a grazing place for cattle. He was very tame, probably on account of being a young bird. Dan McDonald shot it; he had no gun when it lit and got close enough to it to reach it with his pike-pole before it took a short flight; then came for

his gun and got the bird." The letter is dated "Rifle Boom," which is located at the mouth of the Rifle River on the west shore of the Saginaw Bay, about twenty-five miles north of this city. The specimen at present in my collection I find to be a young bird, without doubt of the year, wanting on the head entirely and to a considerable degree on the back, the beautiful gloss and purple reflections of the adult bird. The length is about 24 inches; tarsus 4 3-16; 3d toe and claw 3 4-16; naked tibiae 2 6-16; while the bill exceeds the average of measurements, being 5 7-16. The anterior half of the middle claw is pectinate with four distinct incisions forming four separate teeth.

But few other notes of interest have been made the past season. Several cases of Albinism have been observed in the English Sparrow, while a few of these carnivorous (?) individuals were seen one day feeding on an old beef bone thrown into the street. A perfect albino Horned Grebe is exhibited in one of our store windows, taken at the Quannicassee marshes, Oct. 1883.

More "Plain English."

BY MONTAGUE CHAMBERLAIN, ST. JOHNS, N. B.

I have been requested by a highly esteemed correspondent to answer the following questions through the columns of "The O. & O." and I gladly accede. He writes: "Have your views regarding the use of the vernacular instead of the scientific names, in writing of our birds, undergone any change since you penned the article entitled "Plain English," ("O. & O.," VIII, p. 53), and if so, what would your advice now be, to young students, concerning the use of scientific names?"

My friend is something of a Brahman in scientific matters, and would keep science for the few, and of course like the majority of his caste holds firmly to the belief that scientific names and they only should be used in scientific papers. My friend is also a bit of a wag and I imagine he thinks he has me cornered by these questions, and expects to turn the laugh against me, for he considers that my practice has not always been consistent with the ideas expressed in the article to which he refers.

Well, however the laugh may go, I will admit that I do hold a higher respect for technical terms, and a greater appreciation of the necessity for their adoption, than formerly. But while admitting this, I must affirm that experience has strengthened my convictions that a mischievous effect has been produced by the unnecessary use of technicalities in scientific writing; and I am

more strongly confirmed than ever in the belief, that scientific papers can be made plain and precise without the absurdly extravagant use of these terms, which have made so many books and articles repulsive to the general reader—and these were the points which I aimed at in "Plain English."

That the birds, and, indeed, all objects in nature should have a scientific name, no thoughtful student will probably deny; though many will doubtless admit that while, for convenience sake, these names have become a necessity, they are also in some ways a nuisance which would gladly be dispensed with were such a change practicable.

Many writers no doubt become so accustomed to using these scientific names that they recur to their minds more readily than the vernacular do, but this is no reason why amateurs should ape such intimacy, for affectation of that sort is a display of weakness as well as bad taste. Some amateurs have the habit of using none but the scientific names in private correspondence, and in making out "exchange lists." I receive such documents very often, and will confess that they neither increase my regard for their author's knowledge, nor my respect for his good breeding, nor do they improve my temper. In such cases I think a correspondent might much better have copied the English names, and saved me the trouble of hunting them up, as well as saved his own credit. I use the word "copied," for the number of amateurs, or even of advanced students, who know the scientific names of all the birds of America, or of even a limited area, are comparatively few.

As I have said elsewhere, it seems advisable to teach young beginners that these scientific names, and, indeed, all technical phrases, are simply conveniences and nothing more; that these words which are to many so repulsive in appearance, and so difficult to master, are not, as some laymen appear to consider, the most important part of science; theirs is a very subordinate part, and they can be advantageously passed over by young students until they have advanced so far that their need of these technicalities as conveniences, will impart to them an interest and remove their apparent repulsiveness. But teach the beginners likewise that the unnecessary use of these same conveniences becomes abuse, and that no abuse will be tolerated.

This is my answer, and if my waggish and Brahmanical friend is not satisfied, let him lodge his complaint with "The O. & O.," and I shall sharpen my quill for another effort."

Notes from Taftsville, Vt.

BY C. O. TRACY.

The occurrence of the White Ibis, (*Eudocimus albus*), so far north of their usual range may seem almost phenomenal, still a fine example of the species was taken in South Woodstock, Vt., some six or seven years ago the past Summer, (the exact date is not readily obtainable), and is now in the possession of my friend, W. L. Damon, Esq., of Woodstock, Vt.

Four species of birds have been noted by me the past season for the first time at this place, viz: Wood Thrush, (*Hylocichla mustelina*), two birds, May 10th; Kentucky Warbler, (*Opovornis formosa*), May 19th; Yellow-bellied Flycatcher, (*Empidonax flaviventris*), frequently seen throughout the Summer, first occurrence May 25th; Mourning Warbler, (*Geothlypis philadelphia*), Sept. 20th.

Among the more prominent autumnal migrants, the first White-throated Sparrow, (*Zonotrichia albicollis*), came Sept. 16th, they were common by the 20th, and continued so until Oct. 5th, and occasionally one up to Oct. 24th, when they were plentiful and disappeared.

Oct. 4th, brought White-crowned Sparrows, (*Z. leucophrys*). They continued fairly common—in much larger numbers than I have ever seen them before—until their final departure Oct. 24th.

The first Fox-colored Sparrow, (*Passerella iliaca*), appeared Oct. 14th, by the 27th they came in immense numbers, lingering until the 30th. One individual was conspicuous among its fellows by having a white tail and primaries, and very light upper plumage. This species has occurred here only as a rare migrant before.

Blue Snowbirds, (*Junco hyemalis*), were common from the last of Sept. to Nov. 1st. Tree Sparrows, (*Spizella montana*), were common throughout Oct. The northern influx of Robins, (*Mevula migratoria*), occurred Oct. 6th to 9th, inclusive, thousands of them passing this place. Large numbers of Bluebirds, (*Sialia sialis*), passed from Oct. 8th to 16th. Yellow-rump Warblers, (*Dendroica coronata*), were also uncommonly abundant from Oct. 7th to 16th. A little snow on the morning of the 16th, caused large numbers of them to seek shelter about the buildings. Following the very abundant Autumnal migration has been a period almost destitute of bird life, but for an occasional Jay, Hairy, and Downy Woodpecker, Nuthatch, and Chickadee. From the number of Owls sent me in the past few weeks, it would seem that they are much more plentiful than a year ago.

The Red-bellied Woodpecker.

(*Centurus carolinus*)—(LIN) SW.

BY D. E. L., MANHATTAN, KAN.

In this part of Kansas four species of Picidae are common and permanent residents. These are the Downy, the Hairy, and the Red-bellied Woodpecker and the Yellow-shafted Flicker. The first and the last mentioned are more abundant than the others. The Red-headed Woodpecker is a common Summer resident, rarely remaining later than Sept. 1. It is also a late arrival in Spring migration. The Red-shafted Flickers (*Colaptes auratus* and *hybridus*) are rather common in Winter. The Pileated Woodpecker, although common in more-heavily timbered portions of the State, is rare here, only two specimens having been observed in a residence of six years. Of the Yellow-bellied Woodpecker but one specimen has ever been observed in this locality.

There is so much uniformity in the breeding habits of our Picidae that one would think there is nothing new to learn. Yet I feel that I have been amply repaid for the casual attention given to our common *Centurus carolinus*. Knowing that many of the readers of the O. and O. have not had opportunities for an intimate acquaintance with it, I take for their benefit, a few notes from my records.

One of the first facts to be noted about our western Woodpeckers is their familiarity and boldness even in the breeding season. None but the Hairy seem to have the retiring habits so often noticed in the east. The Flicker, the Red-headed, and the Downy Woodpeckers come into the door-yards in the most thickly settled parts of our towns, and excavate holes for their nests in the decayed limbs of shade trees. The first two frequently make holes in the cornices of buildings, and rear their young under the same roof that shelters us. Singularly enough, the Red-bellied Woodpecker shares in this familiarity, and receives the protection of those whom he favors with his noisy company.

My first acquaintance with its nest was in 1882, when I found a nest near the Big Blue river. This nest was in a large Elm tree which grew in an open space not far from a farm-house, and near the edge of the timber. The excavation was in a large dead limb, about twelve feet from the ground. On climbing to it, I found three fresh eggs, and left them for the full set which I found to be five eggs. These were taken May 12. During last season I found about a dozen nests of these species from which I collected several sets. The nests present nothing new in choice of

position, being usually less than twenty feet from the ground. My earliest date for a full set was May 10. On May 13 two sets were taken, one of four and the other of five eggs; both were slightly incubated. It was a great surprise to me to learn how devoted this bird is to its nest. After incubation has commenced, no noise or disturbance is sufficient to drive the bird away. In several cases it was necessary to remove it by force before the eggs could be secured. After being robbed, it almost immediately begins the excavations of a hole for a second set of eggs. This is always in the vicinity of the first, often in the same tree. Their attachment for their nests is an additional trait of character which should commend these birds to our protection. Besides, the fact of its being a permanent resident and thus an ever useful "insecticide," renders it one of the most beneficial of the Picidae.

The eggs of this species are in size and general appearance so much like those of the Red-headed Woodpecker that they cannot be distinguished. In making exchanges of Woodpecker's eggs with others, faith in the reliability of the collector is an essential factor.

A Visit to a Heronry.

BY EDWIN F. NORTHROP.

In a swamp on the north shore of Oneida Lake, N. Y., the Great Blue Herons, (*Ardea herodias*), congregate every Spring to breed. For several acres nearly every tree contains one or more nests of these strange birds. Their eggs have a scientific value of about thirty cents each and can be exchanged for other eggs at that price.

On May 11, 1883, my friend John Dakin, a close observer and an honest man, with myself made a visit to this place for the purpose of collecting eggs and studying the breeding habits of the Herons. We found we were ten days too late for obtaining fresh eggs; so on the following Spring we repeated the visit, but at an earlier date.

Thinking it may interest the readers of the ORNITHOLOGIST AND OOLOGIST to learn about this curious place and to read the experiences of two ardent collectors, I cull from my notes the material for this article. In accordance with our plan, May 1, 1884, found us at 3.30 in the morning, seated at the table of Nett Wood's, in Brewerton, eating heartily of a warm breakfast, for we knew a hard day was before us. After breakfast we started off by the light of a lantern, in a boat loaded with guns, baskets, climbers, lunch, birch-bark, and other equipments necessary for a col-

lector's use. After having rowed in the darkness for some time, we reached Great Bay swamp in which the Herons breed. The entrance to the heronry is a road used in Winter for drawing wood, but which at this season of the year is covered, as is all the rest of the swamp, with from two to three feet of water. This road runs back a mile or more to dry land and passes the heronry a few rods to the west. Along this water road we poled the boat without much difficulty, till we were opposite the nests. But when we left the road and pushed the boat into the unbroken swamp, it became harder work. Logs had to be gone around or the boat dragged over them, brush to be cleared away and many other annoyances to be overcome. But at last we found ourselves in the midst of the heronry, and a wild place it is. The flooded land extends back from the lake shore for about one and a half miles and much farther along the shore.

Between the 25th of March and the first week in April, the Great Blue Herons begin to congregate in this swamp to breed. From that time until their eggs are laid, they may be seen flying to and fro in the swamp carrying large sticks in their bills with which to repair their nests. I say repair, for the Herons seem to be attached to their old nests and to use the same ones year after year.

The timber in the swamp is all Black Ash and grows very high, branching at the top. The trees are slender, varying from one to three feet in diameter, and are readily climbed with spurs, that is if one is an adept at using them. Several hundreds of these nests, built in the crotches of the limbs, are grouped together at one place in the swamp and cover a space nearly or quite half a mile across. Nearly every tree which rises to the general height of the rest and which has favorable crotches, contains from one to four nests. Two, however, is the more usual number in one tree, four being seldom found. The nests are constructed of sticks about one-fourth to half an inch in diameter. A large bundle is laid on a crotch and lined with finer twigs, making a flat nest from twenty-five to forty inches in diameter.

Audubon describes the Great Blue Heron's nests in the south as being lined with a layer of weeds, but there is nothing of this kind here. The nests and tree tops are all white from the droppings of the birds, which, possibly, has a tendency to kill the trees, as many have dead tops. From the higher trees one can look down into many nests, all of which contain eggs. The usual number is three or four, and many nests contain five, a few have two, and John found one

nest containing six! We went at just the right time to find full sets and the eggs fresh.

Their average measurement is 2.63 by 1.75 inches. John found one abnormal egg which measured but 1.66 by 1.34. These eggs are pale greenish blue, shells' not very rough, and generally oval, although they sometimes vary from this shape.

At this season there are few other birds in the heronry itself. A few small flocks of Black-birds wander in and Woodpeckers rap the trees. A little earlier, and in other parts of the swamp, many Black Ducks are found, and later, many Wood Ducks build in holes their feather-lined nests.

When a gun is first fired in the swamp, hundreds of terrified Herons rise off their nests, uttering from their long throats most deafening squawks, quite similar to the quack of a duck, but coarser and much louder. You can see them everywhere anxiously flying over the tops of the trees, with their necks reeled and their long legs held closely together and thrust straight out behind. They are now easily shot with a long reaching gun and many could be killed, still one is surprised, when he considers the size of the marks, to see how many he fails to bring down.

I want some for their skins, so am prepared to shoot the next one that came along. It is but a moment before I see a fine specimen with broad pinions, approaching. His neck is reeled, nervously he turns his crested head from side to side, trying with his sharp yellow eyes to catch sight of the hostile collectors below. I raised my gun to fire, the Heron sees the movement, when suddenly giving a loud squawk, he changes his course and strives to escape by vigorously beating the air with his wings. But too late. A fatal pellet has crushed through his wing-bone and the heavy body, unsupported, falls crashing through the bare limbs and far down to the water with a loud splash. I hasten to catch the wounded bird, he sees me coming and raising on his stilt like legs first attempts to make off. But the wounded Heron soon finds that he is overtaken; then with broken wing drooping, he stands and stretching up his long neck with its feathers all on end, and erecting his wavy crest, the sharp bill being partly opened, in a rasping voice he bids defiance. He is certainly a fierce looking bird, and as he stands there with ruffled feathers, a beautiful one. Arming myself with a club, I cautiously approach and striking the towering bead a sharp blow, lay him quivering on the water. Such is the mercy of science!

Up to this period, May 15, the birds have not

been sitting long enough to injure their plumage and as only full plumaged birds breed, and are found in the heronry, the specimens shot here are in the finest feather. Generally, in heronries farther south, other species of Herons breed with the Great-blues, but at this place only the one kind is found. There are several Eagles at Oneida Lake and while on this trip I saw one dash in among the Herons, scattering them right and left, the terrified birds raising loud cries, and I wondered if the Eagles ever killed any, or disturbed their eggs. This Eagle at least flew off with empty talons. I should be glad to learn through the columns of this magazine, from any one having positive knowledge as to what may be the habits of the Eagle in this respect.

Fortunately it was a warm, bright day and we thought we could do better by wading from tree to tree than by pushing the boat about in the brush. So after eating our lunch and having strapped on our steel climbers and adjusted to our sides the cigar boxes in which the eggs were to be carried down from the trees, we were soon at work. It makes me chilly now to think how I felt, when first I stepped into the cold water nearly up to my waist. Then, too, when all heated from the hard exercise of climbing, it was a severe experience to suddenly cool off by wading in the cold water to another tree. To take the eggs from the nests which were out of reach, we used small scoops attached to the end of long sticks. Having taken and marked the sets of all the eggs in one tree, we would descend and pack them with moss or cotton in a market basket and then seek another tree containing more than one nest. When we were up in a tree the Herons would often approach quite near. They could be seen in different places, with heads drawn down on their shoulders, perched on a limb guarding their precious eggs, or sometimes we would see one quite near us, dressing its long black and white breast feathers and displaying its graceful plumes and the beauty of its arched neck.

We worked hard till nearly sun down, having collected over a hundred eggs each and shot a few Herons. When we were ready to start back for the boat, we found that we had wandered from it not a little distance. It is no easy task to wade in two feet of cold water with hidden brush to catch the feet; two six pound Herons are not a very light and compact bundle; a heavy basket of eggs will take away the use of one hand, and legs which have used climbers all day work clumsily; empty stomachs are not silent, and taking all together, by the time we reached the friendly boat, our greatest desire was to sit down. We were

not enough exhausted, however, to fail to notice the rappings of a Pileated Woodpecker, a bird not recorded heretofore as being in Onondaga county, in fact I gave him a long chase, but he was too wary for me and escaped.

It was hard work, with our tired muscles, pulling the boat out of the swamp, but at last we reached the lake, just as the enveloping shades of night were creeping over the wild, wet hole behind us.

What a luxury it was to change our wet and torn clothes, and to sit down to a warm supper and think of our work in the heronry as successfully accomplished.

Notes on the Birds of the Sea Islands.

BY WALTER HOXIE, FROGMORE, SO. CAR.—PART I.

These notes are a digest of my notes since Oct. 1867. I have kept them on the margins of the leaves of a copy of Baird's report Vol. IX Pacific R. R. The locality includes Ladies and St. Helena Islands and the Hunting Islands between St. Helena Island and Port Royal Entrance. I shall follow no special order but give the Waders first as they are essentially the typical birds of this locality. The other orders as fast as I can get my notes into shape. Of these (251) two hundred and fifty-one are species which are attributed to this locality. I find by my notes that I have now killed or otherwise identified (238) two hundred and thirty-eight species. The Smithsonian numbers will I think serve for identification, as well as the Latin names and save space.

Great Blue Heron, (487,) Resident:—Breeds the second week in May on nearly all the Hunting Islands. Called "Sambo" by the natives.

White Heron, (489,) common in the latter part of Summer. A few seen all Winter and a few in Spring in breeding plumage. Retires to some interior locality to breed.

Snowy Heron, (490,) arrives about the last of March, (Mch. 25, Apl. 5, earliest and the latest observed dates.) Begins to lay in the latter part of April, nesting in company with the next two species in low trees and bushes in swamps. Leaves here shortly after the middle of October. "Job" of the natives.

Louisiana Heron, (492,) nearly the same dates apply to this as to the preceding. Possibly retires a little earlier.

Little Blue Heron, (493,) arrives a week later in Spring, and tarries at least a month later in the Fall. Must be more partial to the interior as a breeding ground, still many are here all Summer. Late in the season the young of this species seems

to outnumber two to one all other Herons except the Green.

Green Heron, (494,) very common and breeding plentifully, arrives a few days after the middle of March and begins nesting before the middle of April. Departs about Oct. 10, "Skow" of the native.

Night Heron, (495,) not uncommon, breeds, often seen in winter.

Yellow-Crowned Night Heron, (496,) common, arrives early in May and the Fall departure depends upon the supply of coarse fish upon which this bird seems (while here at least) to feed exclusively. If the ponds and swamps become dry they leave as soon as the young can fly, otherwise they linger until late in the Fall. Breed later than any of the other Herons, in high trees surrounded by water; nest *very* slight. One of my colored friends says, that the old bird cries herself sick if she has to use more than three sticks in her building.

Bittern, (497,) Spring and Fall migrant.

Least Bittern, (498,) common, breeds.—Two broods are probably reared as I have obtained the eggs early in May and again in August; seldom seen in broad daylight but easily procured before and after sunset.

Wood Ibis, (500,) common in July and August. Flocking in the marsh and about all the ponds in the Hunting Islands.

White Ibis, (501,) *seen once*.

Glossy Ibis, (505,) rare or only occasional in young plumage; (June 30.)

Spoon-bill, (505,) quite rare; one or two taken every year on Port Royal Island.

Golden Plover, (515,) scarce, have taken it in every month from October to April.

Killdeer, (516,) common resident and Winter visitor. Some years breeds and occasionally retires altogether.

Wilson Plover, (522,) arrives the first week in March, breeds early in May. Leaves in September.

King Plover, (517,) migrant, common in April and May. Retiring as early as the first of August and often lingering late into the Winter.

Piping Plover, (520,) not very common in April and May. Quite rare in the Fall, must return by a different route.

Black-bellied Plover, (513,) migrates slowly in the Spring and usually in fine plumage. Scarcer in the Fall.

Oyster Catcher, (507,) common resident, breeds in May.

Stilt, (567,) saw a flock in April, (out of powder.)

Winter Birds of Webster, N. H.

BY FALCO.

A list of birds seen and taken during winter, in and near Webster, N. H., covering a period of eight years careful observation:

Robin, (*Merula migratoria*). One specimen seen Dec. 25, 1880.

Golden-crowned Kinglet, (*Regulus satrapa*). Common Winter resident

Black-capped Chickadee, (*Parus atricapillus*).

Hudsonian Chickadee, (*Parus ludovicianus*). One shot Nov. 1875, and two seen Nov. 1878.

White-bellied Nuthatch, (*Sitta carolinensis*).

Red-bellied Nuthatch, (*Sitta canadensis*).

Brown Creeper, (*Certhia familiaris rufa*).

Winter Wren, (*Anorthura troglodytes hyemalis*).

Seen as late as Nov. 15, probably breeds, as it remains in small numbers during Summer.

Great Northern Shrike, (*Lanius borealis*).

Loggerhead Shrike, (*Lanius ludovicianus*). One specimen taken in Concord, N. H., Jan. 20th, 1879.

Cedar Bird, (*Ampelis cedrorum*). A flock of twenty or more seen in Jan. 1878, and several shot.

American Crossbill, (*Loxia curvirostra americana*).

White-winged Crossbill, (*Loxia leucoptera*). Rare Winter visitor.

Pine Grosbeak, (*Pinicola enucleator*).

Purple Finch, (*Carduelis purpureus*).

Common Redpoll, (*Aegithus linaria*).

Goldfinch, (*Astragalinus tristis*).

Pine Goldfinch, (*Chrysomitris pinus*).

Snow Bunting, (*Plectrophanes nivalis*).

English Sparrow, (*Passer domesticus*).

White-throated Sparrow, (*Zonotrichia albicollis*).

Tree Sparrow, (*Spizella montana*).

Black Snowbird, (*Junco hyemalis*).

Red-winged Blackbird, (*Agelaius phoeniceus*). A fine one taken in Warren, N. H., by Mr. M. C. Harriman, Jan. 7, 1878.

Meadow Lark, (*Sturnella magna*). One specimen remained through the Winter of '74-'75.

American Raven, (*Corvus corax americanus*). One specimen taken in Sutton, N. H., Dec. 20, 1878, and another seen.

Common Crow, (*Corvus frugivorus*).

Blue Jay, (*Cyanocitta cristata*).

Hairy Woodpecker, (*Picus villosus*).

Downy Woodpecker, (*Picus pubescens*).

Black-backed Woodpecker, (*Picoides arcticus*).

Banded-backed Woodpecker, (*Picoides americanus*). Very rare; one specimen taken in Jan., 1875.

Pileated Woodpecker, (*Hylotomus pileatus*).

Barred Owl, (*Strix nebulosa*).

Saw-whet Owl, (*Nyctale acadica*).

Screech Owl, (*Scops asio*).

Great Horned Owl, (*Bubo virginianus*).

Snowy Owl, (*Nyctea scandiaca*).

Hawk Owl, (*Surnia funerea*). Very rare; two specimens taken, and another seen.

Cooper's Hawk, (*Accipiter cooperi*).

Sharp-shinned Hawk, (*Accipiter fuscus*).

Goshawk, (*Astur atricapillus*).

Red-tailed Hawk, (*Buteo borealis*).

Red-shouldered Hawk, (*Buteo lineatus*).

Rough-legged Hawk, (*Archibuteo lagopus sancti-johannis*). Rare, several specimens in the light plumage taken, and one in the black seen.

Bald Eagle, (*Haliaeetus leucocephalus*).

Ruffed Grouse, (*Bonasa umbellus*).

Quail, (*Ortyx virginiana*).

Sheldrake, (*Mergus merganser americanus*).

We were induced on the authority of another person to include the Northern Wax-wing, (*Ampelis garrulus*), in our list published in the *Forest and Stream*, but think it somewhat doubtful, probably the Common Waxwing was mistaken for this species, as the observer was not scientific.

NOTES FROM RALEIGH, N. C.—Black-throated Blue Warbler, (*Dendroica cerulea*). Shot a male of this species on Sept. 18, while hopping about from twig to twig in some willow bushes. It was in company with Water Thrushes, (*Sialurus naevius*), and Redstarts, (*Setophaga ruticilla*). I noticed it by its dark coloring and the white spots on its wing; unfortunately it was too much injured by the shot for preservation. Brown-headed Nuthatch, (*Sitta pusilla*). These are by far the commonest Nuthatch in this locality, *Sitta carolinensis* being rather scarce, and are most usually to be met with in pine woods. They are plentiful throughout the whole year and are decidedly gregarious in their habits, going about in flocks of from five to twenty. Winter Wren, (*Anorthura hyemalis*). Fairly common Winter visitor, found chiefly along the creeks and branches. Pine Finch, (*Chrysomitris pinus*). Shot two of these birds from out of a flock of Goldfinches on Dec. 10. Is not this rather southerly to get this bird? —H. H. and C. S. Brimley.

AN AMERICAN BITTERN, (*Botaurus lentiginosus*), was brought to me on the first of Dec., killed about two miles south of our village. The bird was a male. I have not seen anything of the kind before in this locality so late.—A. Myhill, Medina, N. Y.

CORRESPONDENCE.

Dermal Preservative.

TO THE EDITOR OF THE "O. AND O." *Sir*: The question of Dermal Preservatives is one of the most important that is presented to the Taxidermist, whether he is a professional or an amateur, for upon this one item depends the insect killing and lasting qualities of his work, and, consequently, the value of his collections. Being of such vital importance to all interested in doing work or making a collection that will be *permanent* and not merely *temporary*, it would seem to be advisable for taxidermists to compare notes as to the results of their observations and personal experiences with different preservatives, for the purpose of ascertaining what they can look to for best results.

Arsenic is undoubtedly the preservative most used, and among the many compounds that have appeared from time to time it has stood the test best of all, and proved its great value as an insecticide and preventer of decay. Arsenical soaps, pure dry arsenic, and arsenic and alum mixed, each have their votaries and all are undoubtedly of great value.

The objection to arsenic is found in its effects upon the human system, and while all taxidermists recognize its great value, there are probably few who have not suffered from its effects in one way or another. Owing to this fear of jeopardizing one's health, any new and *non-poisonous*, substitutes are no doubt used by many (and among the many I may count myself) without sufficiently considering the possible results.

Mr. C. J. Maynard, a well known naturalist, has within a few years introduced a *secret preparation* which is known as "Maynard's Dermal Preservative," for which he made the following claims in 1883, when the preservative had been used some two years: 1st, while being a perfect preservative, it is not a poison; 2d, it prevents carbonization; 3d, it will remove fresh oil or old grease from feathers. While these claims will more than meet the requirements we are further informed (in 1884) that "during the past year this preservative has been constantly improved by adding composites," and that now it is also "a disinfectant and deodorizer."

Now there can be no middle ground for him who uses this compound, either he has secured a long wished for boon, or else he is doomed to sorrow and disappointment. Is joy or sorrow to be our lot? Let us who have used this new preparation compare notes fairly and without prejudice, and see what may be the result.

It seems somewhat paradoxical that a compound warranted as harmless to man, should prove fatal to a bug, and why has the preparation been "*constantly improved*" by "adding composites" if it was all that was claimed for it in 1883. Those claims were surely broad enough, if tenable, to cover the entire ground without any improvements, and by "adding composites" to a preparation already so perfect, might not the efficacy of the whole be endangered?

Persons using this preparation must do so as a matter of *faith* merely, for its constituents are a *secret*, and all are obliged to accept statements as facts without the power to judge for themselves.

If Mr. Maynard would publish his formula it seems to me that, upon the hypothesis of its being all that is claimed for it, he would increase the demand for it, as well as prove himself a benefactor of the race.

Many persons I know are now unwilling to use it because of their uncertainty as to its desirability, and I know of others who have *ceased* using it because they could not longer afford to give it the benefit of any doubts as to its efficacy.

Mr. M. probably will not publish his formula, and it behooves us to take action ourselves and endeavor to arrive at some rational conclusion as to its claim upon our favor. I began the use of this preparation some three years ago, and placed the safety of my collection against my *faith* and *hope* in the claims made for it. A short time ago my attention was called to one of my specimens that was "cured" with it, and I found it was being destroyed by moths. Arsenic cured specimens near it were untouched, and in a ten years experience with arsenic I have never lost a specimen on which that preservative was used. Thinking it possible that proper care had not been used in applying the preservative, I cut the specimen in pieces and found that the application has been most thorough. As yet no other specimen in my collection has shown signs of being "inhabited." I am aware that a *single* case like mine may prove nothing, but since my experience I have written to a number of taxidermists on the subject and their replies lead me to suggest a general giving in of evidence. We would all prefer to use a non-poisonous preparation, but cannot afford to do so *blindly* any longer.

Mr. Maynard has informed me that he has sent large quantities of his compound to the Smithsonian Institute. Will some of the gentlemen who have used it there please favor us with their views in relation to it? I am informed that Prof. Henshaw has expressed himself in regard to it. Will he not kindly give us all the benefit of his knowledge? Will not "all who think alike act together" in this matter and give us *more light*? With the hope that "Maynard's Dermal Preservative" may prove all that is claimed for it, I am, etc.,

HARRY MERRILL, Bangor, Maine.

Dec. 15, '84. Since writing above I have found three more specimens that were attacked by moths—all of which were prepared with "Maynard's Dermal Preservative."

THE DESTRUCTION OF BIRDS FOR MILLINERY PURPOSES.

EDITOR O. AND O.: I have read the lengthy article from L. M. McCormick in the November O. and O., very carefully two or three times, and I am compelled to confess that if there are any facts or arguments in it which will tend in the least to show that our insectivorous and song birds are decreasing by reason of their being slaughtered for commercial (millinery) purposes, I am so extremely dull of comprehension I have failed to discover them.

In the same number, in reply to Mr. Lucas, I said I had been able to get generalities *ad nauseam*. After the perusal of Mr. McCormick's article, will not your readers agree that in this case, at least, I am correct? He gives, not one fact, not a scintilla of evidence, that 1st: Our insectivorous and song birds are *decreasing numerically at all*, or 2d: That if they are, it is because they are being destroyed for commercial purposes. In dates he goes back to the last century, but fails to tell us whether the Titmice and Woodpeckers were destroyed in Saxony for millinery purposes; he quotes Buffon and the Isle of Bourbon, but I fail to see the force of the quotation, especially when we know that that amiable Frenchman had the faculty of making assertions that would not bear the light of investigation. Mr. McC., rambles into the wilds of Nebraska and Dakota and finds Blackbirds killed off in great numbers; quotes Prof. Jenks "sixty years ago," but neglects to tell us whether the rage for "bat birds" was the cause of the destruction or whether in his estimation in this year of our Lord 1884, there are too few Blackbirds. He leaps into figures with a recklessness that is amazing; in Missouri, by confining himself to what he is pleased to style the "*main* question," he goes into a calculation that runs up into millions of dollars of tax "paid to this error." Pray, *what* error? and what was the tax paid *for*? He does not tell us. He has

the beautiful, simple plan of all those who deal in these delightful generalities of trying to astonish the reader with the magnitude of his arithmetical genius and erudition, forgetting the point he is endeavoring to make, and trusting to its being considered amply conclusive, seems to say:

"I am Sir Oracle;

And when I ope my lips let no dog bark."

There is one calculation, however, which staggers me at first glance, and that is to be told that the great State of Illinois, rich as I had thought it to be in bird life, should have but an average of "three per acre," and that barren, sandy Long Island should so teem with it that "she can spare 70,000 from one village." I confess that this would be a very taking argument if a person did not choose to examine it closely, but I think your readers can readily see the utter absurdity of the statement without comment, though they would probably like to be informed what insectivorous birds (for no others are in discussion), these 70,000 were, and might properly ask for something more than unauthoritative "careful estimates" and bare statements.

Again, he tells us, the Potato Bug came east because "the way was graded by Grouse and Quail being shipped east by the car load." Did you ever hear of Grouse and Quail luxuriating on Colorado Beetles? Were the Grouse and Quail killed for commercial purposes? Had you heard that the Beetles went down to Maine because the insectivorous birds had been ruthlessly destroyed by collectors and taxidermists? Was the \$50,000 paid in that State for Paris Green the result of the work of these fellows who make such large dividends in their business? And finally, have you ever heard of any wild bird that had got so degenerate as to eat a Potato Bug under any circumstances?

To sum up the whole matter, Mr. McCormick's communication seems to be a great deal of sound and nothing more; it would be a waste of time to discuss it in detail, and I do not consider the "game worth the candle," for I fail to see anything in it that bears upon the question. It seems to be simply a collation of assertions made by various writers dating from the last century down to "sixty years ago," and which have no bearing whatever upon the question under discussion.

The O. and O. made a statement, as I believe correctly, that the various complaints which every now and then appeared in the press "were purely sentimental. . . . and that birds of prey were far more destructive than either collectors or taxidermists." Mr. Lucas answered and "unhesitatingly affirmed" to the contrary, but withholding any reasons, if he had them, why he made such a statement. I asked Mr. Lucas for them and he declined giving them as he said I was sarcastic in my article, and as Mr. McCormick says, because I "dodged responsibility." But the latter takes up the battle and in doing so drops the question entirely, and devotes a great deal of space to floundering about in a mass of generalities of what was done in Europe and elsewhere a century ago, dug out from authorities whose only merit lies in their antiquity. So far as advancing even the semblance of an argument to help out his friend, there is not one word. He deems my article abusive, but your readers may judge as to what *his* may be considered, especially when they bear in mind that he has taken up another's battle and one in which he was not nor could be interested unless as the guardian of Mr. Lucas. He insinuates that I am in the "skin and egg collecting" business, wish to hide my operations under a "scientific cloak," and am thereby "shaky lest the matter be settled." Allow me to say that if I am correctly informed as to our young friend's age, I commenced that business some years before he made his appearance on the stage of life, and with the lamented Kennicott was under the guidance of probably as

enthusiastic a lover of nature as this country has ever produced. Certainly no one will say that Jared P. Kirtland would ever countenance the destruction of a bird except it be for a good purpose.

I have yet to sell or offer for sale an egg, nest or skin, and when Mr. McCormick insinuates that I am one of the "hypocritical humbugs who rail against the promoters of protection . . . to throw dust . . . and to bluff off close investigation of questionable transactions," I will call your attention to the fact that it is in very poor taste for any one, who, as both he and Mr. Lucas have, exposed and offered for sale Orioles, Bluebirds, Meadow Larks, Yellowbirds, Goldfinches, Sparrows and Snow Buntings, to attack any one, even though it was well known that he was in the business of collecting "hat birds," with insinuations as to "questionable transactions," much less to stigmatize them as "hypocritical humbugs." For my part I cannot see that there is so great a difference as to the increase or decrease of bird life whether a bird is killed and the skin adorns a lady's hat, or in execrable mounting, her mantel piece. For the fellow who mounts for the mantel, to make wry faces at the one who mounts for the hat and call him "humbug," looks as though it was very like "pot calling kettle black."

My only excuse for occupying so much of your space is that it seemed necessary to show up the fallacies of Mr. McCormick's article and reply to his polite (?) insinuations. I am glad to see that others are considering the question, and I fully endorse the opinion of A. T. G., in your last number, in relation to that pest of the fields, the house cat.

I will try before long to give what facts I am in possession of upon my side of the question.

W. W. G.

[We have taken upon ourselves to strike out some of the less important parts of our correspondent's letter, partly from the necessities of space, and partly because we desire to restrain personalities in such discussions. We are at all times anxious to encourage free discussion of questions that will interest our readers. Whatever opinions we may hold upon any point, will not affect the fair treatment it is our intention to give to every correspondent who has anything to say which adds light to matters under discussion in our columns.—Ed.]

WHERE DOES THE PURPLE MARTIN SPEND THE WINTER MONTHS? A valued correspondent asks us this question, adding "I heard a man say that, no one could tell. I could not, but don't believe his statement nevertheless." Dr. Coates has an interesting note, (*Birds of the Colorado Valley*, p. 447, *et. seq.*) in which he says that "we have yet to discover where the great mass of Martins bred each year in the United States, stay in winter." The *Progne purpurea* which is frequently referred to as a Central and South American bird, is very probably our Purple Martin. The point is one worthy of observation by those in a position to give it attention.

INQUIRIES. Through your columns I would like to ask your readers,—Do birds ever play 'possum'? A. L. Parkhurst.

Could not some one through the O. and O. tell how to remove ink numbers from eggs without hurting the shell? Ammonia and oxalic acid will do in some cases, but in others it softens the shell. W. Otto Emerson.

CALIFORNIAN NOTES. ERRATA. (O. AND O. IX.)

P. 136, 2nd col. line 4, for Jan. 15, read April 5.

P. 144, 1st " 34, for "Texan Kingfisher," read "Belted Kingfisher, (*Ceryle alcyon*.)"

" 44, strike out "Cuban."

The change we are making in mailing, will, we expect, improve the condition in which the numbers are received, and also insure more certain delivery.

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No. 2

Migration in the Mississippi Valley.

THE RELATION OF MIGRATION TO ATMOSPHERIC
WARM AND COLD WAVES.

BY PROF. W. W. COOKE, MOORHEAD, MINN.

PURPLE MARTIN, (*Progne subis*). This species will be treated with reference to the influence which the atmospheric warm and cold waves had upon its movements. If we study the reports of the Signal Service we will find that there is a succession of cold and warm waves passing over our district. They begin in the northwest, or in the Rocky Mountains, passing eastward and southward. This is true of the warm waves as well as the cold. The common idea that a warm wave begins in the south and passes northward is wrong; it begins in the north and passes southward. To take a concrete example, on the night of April 23, 1884, a warm wave began at Custer, in the Rocky Mountains. At 11 p. m., the temperature was 63°, while at Memphis, Tenn., several hundred miles farther south and east, it was 15° colder, the mercury standing at 48°. This warm wave reached the Missouri River at Yankton and Omaha on the night of April 25th; the Mississippi at Keokuk and St. Louis on the 26th; the next night it is shown in the records at Cairo and Memphis, while the maximum heat is not reached at Vicksburg until the night of the 28th. Thus this warm wave occupied five days in passing from the Rocky Mountains to Vicksburg. Before this, on the 27th, a cold wave had already struck Custer, reducing the temperature to 35°; and this cold wave also passing south and east, reached Vicksburg the next night after the warm wave. In this way, waves are constantly passing, and their influence on the migration of birds is very marked. Seldom, if ever, will a bird attempt to move against a well pronounced polar wave, while the night of maximum heat, other conditions being favorable, is the time when the greatest movement will be made.

These facts having been thoroughly proved by the records of last Spring's migration, let us note

their bearing on the study of the notes as contributed. We find in the record of any one of the more common species, first, certain notes which are self-evident mistakes; these we throw out; secondly, we find a number of records, varying from ten to thirty per cent. of the whole number contributed, stating that the first or bulk of the species arrived during a night which was the minimum of a cold wave. What shall we do with such records? Often the high standing of the observer precludes the possibility of a misidentification, and even a wrong name would not help us out of the difficulty. The probability is that in seven or eight cases out of ten, the birds actually came during the preceding warm wave, and were unnoticed until several days after their arrival; the other cases being those in which a species, starting to migrate under favorable auspices the early part of the night, is overtaken en route by a storm and forced to seek the nearest shelter; or those cases, toward the latter end of migration, when even the comparatively cold waves do not reduce the temperature sufficiently to stop migration.

The rest of the notes group themselves principally around the maximum of the warm wave; a large number exactly on the night, some one day before and some the day after. Out of a list of some six hundred notes, not selected but taken, just as it happened, and studied with special reference to the waves, it was found that about seventy-five per cent. as many movements were recorded for the night before the maximum, as for the maximum night, showing that the birds made much use of this night for migration. We arrive at the same conclusion if we study the record of the single station at St. Louis. Here we find that the great movements of the birds, the local bird waves, are about evenly divided between the maximum and the night previous. Some would therefore say that the birds foresee the approaching atmospheric warm wave and migrate accordingly, but probably a better statement would be that increasing warmth becomes



sufficient, even before the maximum, to start the migratory tide.

On the day following the maximum there are few records, indeed scarcely more than for the minimum nights, so that when we consider that probably one half or more of these records are of birds that came on some previous night, we see how little movement normally occurs on this night. We cannot say that no migration ever occurs, for we have two positive records of such occurrences last Spring at St. Louis.

To recapitulate, the greatest movement takes place on the nights of maximum heat; the next greatest on the night before the maximum; very little on the night after, and still less, in a large number of notes only about twelve or fifteen per cent. on the minimum night of the cold wave.

Let us turn now to a concrete example and study the effect of the atmospheric waves on the movements of the Purple Martin. So far as last winter's observations go, this species was not found in our district during the cold of January, nor of the greater part of February. Contrary to the ordinary rule, the advance was about the same time in the west as in the east, as if the birds were invading our district by land from Mexico. The first arrivals came to 31²² Texas, February 25th; four days later they were heard by Mr. Ragsdale at 33³⁶ Texas, while on the afternoon of March 5th, at 34¹¹ Indian Territory, I was hurriedly brought to the door by the sound of their twittering around a neighbor's house.

In Louisiana the first one is reported at 29⁵⁹ February 23d, and in Mississippi at 34¹⁰ March 1st. These birds were a few stragglers that had gone far ahead of their fellows. I saw no more at Caddo until March 11th, nor is any increase noted from either Louisiana or Mississippi until about the same date.

During the night of March 10th, there was a sudden and very pronounced warm wave in the Mississippi Valley, marked by a strong south wind. Its influence was felt almost simultaneously from Bismarck, Dak., to Vicksburg, Miss., raising the temperature about twenty degrees. This marks the first advance within our territory. New birds come to 34¹¹ Indian Territory, fresh arrivals are noted from 29⁵⁷ Louisiana, and the first ones from 33³⁴ Mississippi, and 35³⁶ Arkansas. But this auspicious start was to receive a severe check; the next night the temperature fell thirty-two degrees at Omaha, and in the northern part of the valley even to zero. A halt was called and the Martin rested on their arms—or wings.

Slight warm waves occurred after this, and

even quite a pronounced one on the 16th, but the Martins did not heed them; it is not until the wave of the 25th that we find another note. This wave, though slight, carried them forward, and the next morning they are noted from the stations in southwestern Missouri at 36⁵⁶ and 37⁰².

The night of the 22d, a warm wave started from the Rocky Mountains and reached Vicksburg the 24th. It did not have much effect in the north, but gaining force as it went, in the southern Mississippi Valley it raised the temperature to the highest of the year. The commander-in-chief of the Martins ordered an immediate advance, and morning light on March 25th found the picket line stretching almost due east and west from 39⁴³ Illinois to 39¹² Kansas. Again a halt is called for about a week.

There was a warm wave the night of the 27th, preceded at St. Louis by much movement among other species on the 26th. There is no record from any station for this wave unless the two records for 41³⁶ and 41³⁸ Iowa, on the 30th, belong here, but it is probable that at this time they were passing over northern Missouri and central Illinois, where to our great regret, we have no observers. At the most this could have been but a slight movement, and is followed by a greater, simultaneous with the atmospheric wave of March 30th and 31st. This brings numbers of Martins to all the country from 39° to 42°, but marks no advance beyond the limit attained by the preceding wave.

April 3d, in the upper Mississippi Valley was almost the warmest of the year, and tempted one adventurous Martin to fly two hundred miles beyond his proper limits, to Lanesboro, Minn., 43⁴³ only to leave immediately, nor were any more seen for eleven days.

The first two weeks of April were for the most part cloudy and cold, with occasional snows, so that it is nothing strange that we find no advance recorded. The maximum of the first warm wave was in the upper Mississippi, April 13th, and the observations agree very well with this maximum. There are a few notes one and two days previous, as if some of the restless ones had a premonition that warm weather was coming, and wished to be ahead of their companions. The van is now brought fairly to 43⁴³ Minnesota and 43⁰⁶ Wisconsin, with large arrivals at various points south to St. Louis, Mo., and Manhattan, Kans. The wave of the night of the 17th, brings the temperature at St. Paul for the first time above 50° and as a consequence, Martins are reported from four stations in that vicinity, with a corresponding advance in Wisconsin to about 44³⁰.

For some unknown reason the rest of April is marked by no advance, almost the only record being that after a sudden cold snap, almost to freezing, about a dozen Martins, refugees from the north, crowded into Mr. Widmann's Martin-boxes at St. Louis on the night of the 23d, and among them the first male of last year in a half starved condition. With a twenty degree rise two days after, they were all off again. The first warm wave in May, on the 3d, finds them at 46th Minnesota, and 47th Dakota, while on May 19th they arrive at Oak Point, Manitoba, 50th.

To recapitulate, there were one hundred and ten observations contributed on the movements of the Purple Martin. After making a few changes of date where it seems fully warranted, we have forty-nine per cent. agreeing with the maximum of the waves; twenty-two per cent. on the day before, seven per cent. the day after, six per cent. mistakes and eleven per cent. indeterminate; or in other words, seventy-one per cent. agreeing with the waves and only twelve per cent. contrary to them. Considering that most of the observers have had very little practice in making observations, this is a very creditable showing.

In the light of the preceding remarks, let us calculate the average speed of migration of this species. It seems probable that in the line of migration from New Orleans to Lake Winnipeg, almost the entire migration took place during the following twelve nights: March 10th, 20th, 25th, 27th, April 11th, 12th, 13th, 17th, May 3d, 9th, 17th and 19th. The distance being fourteen hundred and forty miles, it gives a speed of one hundred and twenty miles a night for every night of movement. Had each station furnished a record, similar to the one from St. Louis, of every night of decided movement, every night of slight movement, the nights of standstill, we could trace the advance with great accuracy and take a long forward step in our knowledge of the phenomena of migration.

The Kentucky Warbler.

(*Oporornis formosa*.) (Wilson.) Baird.

BY D. E. L., MANHATTAN, KANSAS.

The Kentucky Warbler is a common Summer resident of the timbered portion of Kansas, being more abundant in the south-eastern part. Manhattan is near the western boundary of the range assigned to it by ornithologists, it having been taken at Fort Riley, a point about twenty miles west. But it is so common a bird at Manhattan that I doubt not that it is a regular visitor west of Fort Riley, wherever the growth of timber and

underbrush is sufficient to afford it its favorite shelter for a Summer home.

Although the habits of the Kentucky Warbler are well known, and excellent descriptions of its nests and eggs are published, it is so retiring in the breeding season that its eggs have found a way to comparatively few oological collections. My experience is that the nest is difficult to find. I have spent hours in watching the birds and searching for the nest without success. The few nests that I have found have been the result of accident rather than the reward of my diligence.

At this place they arrive from the south about May 1. My earliest record is April 30; my latest is May 3. They soon pair and begin to look about for a building site, at this time the male is a diligent and rather loud singer, and keeps the woods ringing with his "tweedle, tweedle, tweedle." If disturbed, both birds resent any approach by their usual sharp "tship" repeated at intervals as long as one continues moving about in their vicinity; but should one conceal himself and remain quiet, they disappear noiselessly in the thickets and the song of the male is soon again heard. I presume that the female could be just as musical were she so disposed, but that the cares of house building occupy most of the time at her disposal.

Many a pair of these Warblers have I watched, and although I was certain that the nest was in the near vicinity, I have almost uniformly failed to discover it. Once, after visiting a locality at odd times for several weeks, I really found the nest; but the young had just deserted it. In fact, I started the last one away. This was on June 26, 1883. The nest was almost under the top of a fallen tree. It was built in plain view at the foot of a small shrub. Although I must have passed a dozen times within a few feet, I had failed to discover it. It was on the ground in a mass of dry leaves. The chief material was leaves, but the lining was of grass and long horse-hair. It was the most neatly built nest of the species I have yet seen.

My first nest of this Warbler was found on May 26, 1883. I was passing along an unused wood-road in a low, damp forest, intent upon finding a Poor-will which had alighted in the vicinity, when I was startled by the flutter of wings at my feet. On looking down, I saw within a foot of me the nest for which I had often looked. The female Warbler had perched upon a low branch about two rods distant and was tilting and balancing like a Water-thrush, while it uttered its sharp note of alarm. The nest contained two eggs of the Warbler and one of the Cow-bird. Although incubation had begun, I left the nest two days hoping to be rewarded with a larger

set, but was disappointed. The nest was on the ground at the foot of a bunch of tall weeds. It was composed outside of leaves and within of rootlets, grass, and horse-hair. The eggs were white and sprinkled about the larger end with fine reddish-brown dots.

On May 31, 1884, when collecting about twelve miles from Manhattan on Deep Creek a tributary of the Kansas river, I found a nest of this Warbler. This nest was also upon the ground, or rather upon a large mass of decayed leaves. The nest was protected by a bunch of low shrubbery and the leaning tops of a small sapling. It was composed of a rude foundation of the leaves, and lined with a thin layer of fine grass (*agrotis*) and horse-hair. It was very carelessly built, hardly deserving the name of nest. It contained three eggs, one of the Warbler and two of the Cow-bird. Another Warbler's egg was on the ground at a little distance from the nest. This had evidently been removed by the Cow-bird to make room for its own. Incubation had begun in the other eggs. I have always found the Cow-bird eggs to accompany those of this species. On June 18, I met a family of these birds consisting of the parent birds, two young Warblers and a young Cow-bird. The parents were equally solicitous for all the young, and fed them industriously, notwithstanding I was quite near to them.

Eggs of the Kentucky Warbler average about .73 by .56 of an inch. The birds leave for the south early in September.

Florida Bird Life.

PART II.

BY E. M. HASBROUCK.

In my former communication (O. & O., X, p. 4), I stated that I should try and make the rest of my articles more interesting, and this I hope to do. I find that I am not far enough south for the Ibises, Spoonbills &c., &c., but intend going where they are to be found in the Spring. At present I must stay where chance has placed me. Let me commence with:—

Oct. 20. Virginia Quail, (*Ortyx virginianus*). These birds are very numerous here, and may be found in coveys of from ten to twenty within a ten minutes walk in any direction.

Oct. 20. Mockingbirds, (*Mimus polyglottus*), are as numerous here as Robins at the North, and much tamer; their song seems to be made up of the songs of all the other birds put together.

Oct. 22. Red-bellied Woodpecker, (*Centurus carolinus*), are very common in the pine lands and swamps. They may be recognized by their harsh, rasping, guttural "chip."

Oct. 23. Screech Owl, (*Scops asio*). Shot one of these birds to-day in the pine trees. They are quite plentiful, judging from the number I hear at night.

Oct. 24. Bald Eagle, (*Haliaeetus leucocephalus*). Saw one of these birds sailing over the lake to-day. This is the second I have seen since I came here. They are said to be quite rare.

Oct. 29. Savannah Bunting, (*Passerculus savanna*). I saw about a dozen of these birds in a flock to-day; they seemed to haunt the bushes and grass.

Oct. 30. Little Blue Heron, (*Ardea carulea*). These birds may be found in considerable numbers around the small ponds and lakes, but they are very shy and difficult of approach. The young are pure white in color.

Nov. 26. Towhee Bunting, (*Pipilo erythrophthalmus*). Heard a number of these birds in the underbrush to-day, and caught sight of one or two. The plumage seems to be remarkably light.

Dec. 8. Florida Darter, (*Plotus anhinga*), are quite numerous on the river and small streams. When flying for a distance their manner is much the same as that of a Hawk.

Dec. 20. Cardinal Grosbeak, (*Cardinalis virginianus*), are in abundance in the swamps or "hummocks." Their only note at this season is a single "chip," repeated at intervals.

Dec. 25. Barred Owl, (*Syrnium nebulosum*). I shot one of these birds in a clump of Oaks, on high pine land. They may be heard in abundance in the swamps at dark, and occasionally during the day.

Oct. 24. Red-cockaded Woodpecker, (*Picus querulus*), are very numerous in the pine woods, but the females seem much more numerous than the males. They seem to remain in small flocks of from four to eight. Have heard only one note, a single "yip" repeated at intervals, loudly and sharply.

Dec. 27. Yellow-winged Sparrow, (*Coturniculus passerinus*). Have seen two of these little birds. They are very shy, and hide in the tall grass, only stirring when approached within a few feet. They do not fly much, but creep along the ground very swiftly, and will not fly unless forced, but instead sneak under the grass, logs, brushes, &c. I have seen them run down the gopher holes to hide. Not common.

Dec. 29. Maryland Yellow-throat, (*Geothlypis trichas*). Quite numerous, but shy. Found in the scrub palmetto and distinguished only by its complaining "chip," exactly like that of a Wren.

Dec. 29. Red-shouldered Hawk, (*Buteo lineatus*). Quite common.

Dec. 31. Pileated Woodpecker, (*Hylotomus pileatus*). A number of individuals seen in the wildest parts of the swamps; very shy and difficult to approach.

Dec. 31. Golden-winged Woodpecker, (*Colaptes auratus*). Quite a number seen in the pine lands.

Dec. 31. Common Crow, (*Corvus americanus*). Saw one of these birds to-day, the first in a very long time, very scarce.

Jan. 2, '85. White-bellied Swallow, (*Iridoprocne bicolor*). Quite a number may be seen skimming over the ponds.

Jan. 7. Yellow Red-poll Warbler, (*Dendroica palmarum*). Saw a number, and afterwards found them to be quite numerous. Heard only one note, a single "chip."

Jan. 7. Brown-headed Nuthatch, (*Sitta pusilla*). Found four of these little birds in company to-day in the top of a tall pine tree busily engaged in getting insects. Heard them hammer like Woodpeckers a number of times, once in a while uttering a low "che-che-che-che" with the usual Nuthatch tone.

Jan. 8. Catbird, (*Mimus carolinensis*). Heard and saw one to-day in the swamp, the only one I have seen this winter.

The Florida Burrowing Owl.

(*Speotyto cunicularia floridana*).

BY J. C. CAHOON, TAUNTON, MASS.

While collecting in Florida last Winter, I had the good fortune to find a few Florida Burrowing Owls and their eggs. But little has been written about this remarkable Owl, which is getting scarcer every year, and from what I could learn, is not common in any locality in the State. I spent two days collecting, and observing their habits; etc. I found these Owls on a prairie about three miles long, by two wide, near Charlotte Harbor, Manatee Co. The first time that I visited the prairie, March 24, was too early in the season, and I found but two single eggs. There were quite a number of old burrows, showing that these Owls had been plentiful in years past. The second time I went there was twelve days later, and I got one full set of eggs. I copy the following from my note-book: The complete measurement of one female was as follows, length 7.50; wing 6.50; tail 3.00; tarsus 2.90; chord of culmen without cere .68; eyes bright yellow; contents of stomach bugs and small insects. The measurement of the bill and tarsus of the others are, female, bill .61; tarsus 2.10; male, bill .60; tarsus 2.05; male, bill .61; tarsus 1.85; male, bill .60; tar-

sus 1.85; male, bill .62; tarsus 1.86; adult male and female, upper parts brown, rather lighter than the Barred Owl, which they resemble very much except in size, profusely spotted with white and very pale ochre-like marks, finer and thicker on the back of the neck and top of the head. Quills of wings with six to seven whitish or light ochre-like bars, mostly broken into cross rows of spots; tail more distinctly marked with five to six rows; chin and throat pure white separated by a dark brown collar; the under parts white or light ochre, quite heavily and regularly barred with transverse spots of light brown; under parts of tail and the whole of legs unmarked.

The holes or burrows in which these Owls breed are about five or six inches in height and diameter, and from four to ten feet in length, and three or four feet from the top of the ground. Many of the tunnels are shaped like an S. The nest is generally at the end of the burrow, and is composed of small pieces of palmetto roots. The eggs are pure white, subspherical. The measurements of the set are as follows, 1.22x1.02, 1.21x1.05, 1.20x.98, 1.17x1.04, 1.24x1.05, 1.20x1.02, 1.18x1.03. The two single eggs measure 1.25x.92 and 1.27x1.05.

These Owls are not very shy and will allow one to approach quite near before flying. They fly but a short distance and then alight suddenly, bobbing their bodies up and down and making a short, mournful cry. At other times they stand upright, and do not move for a considerable time. Their chief food consists of bugs and other insects. I found a large number of dead bugs and small insects near the burrows in which they were breeding. I think they occupy a hole but one season, burrowing a new one every year. The holes I found them occupying were new ones and I found many old holes on the prairie but none of them were occupied.

Birds of the Upper Passaic Valley, New Jersey.

BY H. F. BARRELL, NEW PROVIDENCE, N. J.

Observed or taken within a circle of one mile. Among the migrants, the dates of the first arrival and of the last one seen are given for the past season also those known to breed. Latitude 40° 43', longitude 74° 25'.

- 1 Wood Thrush, (*Hylocichla ustulata*), Summer resident; common; generally found in woodland. Breeds. May 4—Sept. 14.
- 2 Wilson's Thrush, (*Hylocichla fuscescens*), transient visitor; tolerably common. May 5th.
- 3 Olive-backed Thrush, (*Hylocichla ustulata*), transient visitor; rare. May 9—Oct. 29.

- 4 Hermit Thrush, (*Hyllocichla ustulata pallasi*), transient visitor; tolerably common; generally seen near ground in woodland. April 22—Oct. 26.
- 5 American Robin, (*Merula migratoria*), Summer resident; abundant, everywhere. Breeds. Feb. 15—Nov. 6.
- 6 Catbird, (*Galoscopes carolinensis*), Summer resident; abundant everywhere. Breeds. May 5—Oct. 5.
- 7 Brown Thrasher, (*Harporhynchus rufus*), Summer resident; common. Breeds. Sings early in Spring. April 17—Oct. 3.
- 8 Bluebird, (*Sialia sialis*), permanent resident; abundant. Breeds.
- 9 Ruby-crowned Kinglet, (*Regulus calendula*), Winter visitant; tolerably common.
- 10 Golden-crowned Kinglet, (*Regulus satrapa*), Winter visitant; tolerably common.
- 11 Tufted Titmouse, (*Lophophanes bicolor*), resident. Breeds. Tolerably common.
- 12 Black-capped Chickadee, (*Parus atricapillus*), resident; common. Breeds.
- 13 White-bellied Nuthatch, (*Sitta carolinensis*), resident; common. Breeds.
- 14 Red-bellied Nuthatch, (*Sitta canadensis*), accidental visitant; rare.
- 15 Brown Creeper, (*Certhia familiaris rufa*), Winter resident; rare.
- 16 House Wren, (*Troglodytes aedon*), Summer resident; tolerably common. Breeds. May 5—Aug. 20.
- 17 Winter Wren, (*Anorhura troglodytes hyemalis*), Winter resident; rare. Sept. 23.
- 18 Black and White Creeper, (*Mniotilta varia*), Summer resident; common. April 29—Sept. 13.
- 19 Worm-eating Warbler, (*Helminthoherus vermicorus*), transient visitant; rare.
- 20 Blue-winged Yellow Warbler, (*Helminthophaga pinus*), transient visitant; tolerably common. May 14—Sept. 14.
- 21 Nashville Warbler, (*Helminthophaga ruficapilla*), transient visitant; rare. May 14.
- 22 Orange-crowned Warbler, (*Helminthophaga celata*), transient visitant; rare.
- 23 Tennessee Warbler, (*Helminthophaga peregrina*), transient visitant; rare.
- 24 Blue Yellow-backed Warbler, (*Parula americana*), transient visitant; tolerably common. May 8—Sept. 21.
- 25 Summer Yellow Bird, (*Dendroica aestiva*), Summer resident; tolerably common. Breeds. May 8—Aug. 20.
- 26 Black-throated Blue Warbler, (*Dendroica caerulescens*), transient visitant; tolerably common. May 10—October 5.
- 27 Yellow-rump Warbler, (*Dendroica coronata*), transient visitant; abundant. April 26—October 27.
- 28 Black-and-Yellow Warbler, (*Dendroica maculosa*), transient visitant; common. May 18.
- 29 Cerulean Warbler, (*Dendroica cerulea*), transient visitant; rare.
- 30 Chestnut-sided Warbler, (*Dendroica pennsylvanica*), Summer resident; tolerably common. May 20.
- 31 Bay-breasted Warbler, (*Dendroica castanea*), transient visitant; rare.
- 32 Black-poll Warbler, (*Dendroica striata*), transient visitant; common. May 16.
- 33 Blackburnian Warbler, (*Dendroica blackburniae*), transient visitant; tolerably common. May 19.
- 34 Black-throated Green Warbler, (*Dendroica virens*), transient visitant; common. May 3.
- 35 Pine-creeping Warbler, (*Dendroica pinus*), transient visitant; rare in Spring, common in Autumn. April 16—Oct. 12.
- 36 Red-poll Warbler, (*Dendroica palmarum*), transient visitant; tolerably common. April 20—Oct. 24.
- 37 Golden Crowned Thrush, (*Siurus auricapillus*), Summer resident; common. Breeds. Generally seen on the ground. May 3—Sept. 28.
- 38 Small-billed Water Thrush, (*Siurus naevius*), tolerably common some years; Summer resident. May 18—Oct. 5.
- 39 Connecticut Warbler, (*Oporornis agilis*), transient visitant; rare.
- 40 Kentucky Warbler, (*Oporornis formosa*), transient visitant; rare.
- 41 Mourning Warbler, (*Geothlypis philadelphia*), Summer resident; rare; said to breed in this locality. Last seen Oct. 23.
- 42 Maryland Yellow-throat, (*Geothlypis trichas*), Summer resident; common. Breeds. May 8—Sept. 21.
- 43 Yellow-breasted Chat, (*Icteria virens*), Summer resident; common. Breeds. Generally seen about swampy thickets. May 6—Aug. 20.
- 44 Black-capped Yellow Warbler, (*Myiodioetes pusillus*), transient visitant; rare. May 13—Sept. 21.
- 45 Canadian Flycatching Warbler, (*Myiodioetes canadensis*), transient visitant; common. May 14.
- 46 American Redstart, (*Setophaga ruticilla*), Summer resident; common. May 8.
- 47 Red-eyed Vireo, (*Vireosylva olivacea*), Summer resident; common. Breeds. May 8—Sept. 28.

- 48 Warbling Vireo, (*Vireosylviu gilva*.) transient visitant; common. May 2.
- 49 Yellow-throated Vireo, (*Laniivireo flavifrons*.) Summer resident; tolerably common. Breeds. May 14.
- 50 Blue-headed Vireo, (*Laniivireo solitarius*.) transient visitant; rare.
- 51 White-eyed Vireo, (*Vireo noveboracensis*.) Summer resident; tolerably common. Breeds in thickets. May 8—Sept. 14.
- 52 Great Northern Shrike, (*Lanius borealis*.) Winter visitant; rare; first seen Oct. 18.
- 53 Cedar Wax-wing, (*Ampelis cedrorum*.) permanent resident; common. Breeds.
- 54 Cliff Swallow, (*Petrochelidon lunifrons*.) Summer resident; tolerably common some seasons. Breeds.
- 55 Barn Swallow, (*Hirundo erythrogastra*.) Summer resident; abundant. Breeds. April 20—Aug. 10.
- 56 White-Bellied Swallow, (*Tachycineta bicolor*.) Summer resident; common. May 11—Oct. 12.
- 57 Rough-winged Swallow, (*Stelgidopteryx serripennis*.) Summer resident; rare. Breeds.
- 58 Scarlet Tanager, (*Pyrranga rubra*.) Summer resident; tolerably common. Breeds. May 13—Sept. 14.
- 59 Pine Grosbeak, (*Penicola enucleator*.) Winter visitant; rare.
- 60 Purple Finch, (*Carpodacus purpureus*.) Winter visitant; common.
- 61 Common Redpoll, (*Aegithus linaria*.) Winter visitant; rare.
- 62 American Goldfinch, (*Astragalinus tristis*.) permanent resident; abundant.
- 63 Pine Goldfinch, (*Chrysomitris pinus*.) Winter visitant; rare.
- 64 Snow Bunting, (*Plectrophanes nivalis*.) accidental visitant; very rare.
- 65 Savannah Sparrow, (*Passerculus sandwichensis savanna*.) Summer resident; common. Breeds. April 20—Oct. 24.
- 66 Grass Finch, (*Poocetes gramineus*.) Summer resident; common. Breeds. April 12—Nov. 1.
- 67 Yellow-winged Sparrow, (*Coturniculus passerinus*.) Summer resident; common. Breeds. May 16.
- 68 English Sparrow, (*Passer domesticus*.) permanent resident; abundant. Breeds. A perfect curse to the country.
- 69 White-throated Sparrow, (*Zonotrichia albicollis*.) transient visitant; common. Nov. 6.
- 70 Tree Sparrow, (*Spizella montana*.) Winter visitant; abundant. Oct. 18.

- 71 Chipping Sparrow, (*Spizella domestica*.) Summer resident; abundant. Breeds. April 14—Oct. 27.

(To be Continued.)

The Creeper. (*Certhia familiaris*.)

BY W. WELLS BLADEN, STONE, STAFFORDSHIRE, ENG.

As the Creeper (*Certhia familiaris*) is common to both the Old and New World, I thought that some observations upon its nesting habits would interest your readers.

The Creepers are sub-divided into several species, varying in color, and the rufous form which is found in Western North American, is indistinguishable from the British form of which I write.

In May last year a friend and I went to explore a tree in Sandon Park which has the local reputation of being an "Owl-Tree." It is an old Elm of which only some ten feet of trunk remain. As soon as we arrived at the tree, my friend exclaimed "Here's a Creeper's nest" and between the loose bark and trunk we found a nest containing four lovely eggs. Scarcely had we found them, when a Creeper flew from behind the bark about a yard above, and on examining the place we found a second nest, which was empty. I visited the tree a week later, and not finding any eggs in the second nest, pulled it out for the purpose of examination. It exactly fitted the crevice from which I took it, the bottom part was composed of fine twigs then roots and moss with a lining of fine strips of inside bark, and chips of decayed wood. Upon pulling it to pieces, I was surprised to find in the middle five Creeper's eggs, apparently a full clutch—two of them I broke, and the jellied state of the contents showed they were far from fresh; evidently the bird had forsaken them and built upon the top of them. About ten days afterwards I found yet another Creeper's nest in a different part of the same trunk, close to where the first one was built, but no further eggs were laid. I watched the tree closely on various occasions, and only saw the one pair of birds, these I believe built the four nests.

The Creeper rears two broods in the year, the first clutch being from six to nine in number. The eggs differ considerably in the amount and arrangement of marking, but those of a clutch are much alike. They are pure white in ground colors, beautifully marked with brownish red spots; these form a zone round the larger end, at other times are more generally distributed. In length they are .7 or slightly under, and in breadth .5 inch.

THE
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THEIR NESTS AND EGGS.

DESIGNED AS A MEANS FOR THE INTERCHANGE OF NOTES
AND OBSERVATIONS ON BIRD LIFE.

FRANK B. WEBSTER, Publisher,
PAWTUCKET, R. I.

Editor's Notes.

It has not been possible for us to thank individually more than a few of the many subscribers who have expressed their satisfaction with our enlarged Magazine. We therefore take this opportunity of assuring those who have so written us, that their appreciation is a material assistance in carrying on our work.

In reference to "A New Species of Field Sparrow" described by Mr. Marsh in our last number, (O. and O. X, p 5), Mr. Ridgway writes us. "The name should read *Spizella wortheni*—a name which was bestowed by me in honor of Mr. Chas. K. Worthen, of Warsaw, Ill., who generously presented the type and only known specimen to the National Museum. I first recognized its distinctness from *S. pusilla*, and after informing Mr. Worthen of the fact, obtained his consent to give his name to the species. I was not posted as to the name of the collector, otherwise I should have been very glad to give Mr. Marsh due credit for its discovery." Mr. Worthen also writes us, giving the same information.

It always gives us much pleasure to call attention to a useful book, and a useful book certainly is the "Egg Check List of North American Birds," just published by

Mr. Oliver Davie, of Columbus, Ohio. It contains condensed descriptions of upwards of four hundred species of North American Birds' Eggs, arranged in the order and by the numbers of the Smithsonian Check List. With the aid of this book the collector will be able in most cases to identify his specimens. The information is given concisely, in well chosen terms and in a form which renders reference easy. Few collectors can have sufficient knowledge of Birds' Eggs to be able to do without Mr. Davie's Check list.

An 1884 Hawk List.

BY J. M. W. NORWICH, CONN.

In my observations in the O. and O. on the Butees for 1882, it was noted that a line drawn just outside and around this city would pass through the breeding-places of sixteen pairs of Red-shouldered Hawks. Now, an avian atlas of this part of New London county would also show that an outer circle, girdling Norwich about six miles away, would cut through the ancestral homes of ten pairs of Red Tails, all breeding on dry wooded uplands or hillsides. And I do not find any neighborhood record of a Red-tailed Hawk breeding on a low damp site or in the thick swamps so much affected by its two local congeners. To the nesting Cooper, lowlands or uplands are all the same.

Taken from these outlying and concentric suburbs, on the evening of May 12th, I had twenty-five unblown hawk's eggs on hand, the product of two day's field work and involving half a day's further labor to prepare in good shape for the cabinet. These were taken at about the height of the season when Cooper's were laying freely, the harried Butees trying to hide their second clutches, and Marsh and Sharp-shinned Hawks just coming in. Supplemented by the season's complete take given below, they represent many hours close observation, confirm previous records and views, and give a mass of useful and corroborative data. Any especially fresh details about the nidification, or novel about the eggs of these Raptores, will be given in another paper. Suffice to say here that Owls, Butees, Harriers and Accipiters, bred for the most part in nests used before, in familiar localities, and very generally in Chestnut trees. It will be seen that in no instance did the clutch of *borealis* exceed two and

lineatus exceeded trios but once. To several of the sets is a reference to last year's record which in turn refers to former years, so that the complete breeding history of some pairs can be traced for a generation. It is proposed below to give a plain condensed record with the accompanying notes of course omitted. The statistics as presented are in no sense an advertisement, but show that the yearly take of a single avian family makes a rather formidable list. Neither will the list serve as a directory or Complete Guide to the novice in hawking in this region, as some of the localities are given purely local names and are not all on published maps of the county.

BUBO VIRGINIANUS: February 27, set of two, Quail-trap Meeting-house.

SYRNIUM NEBULOSUM: Tuesday April 1, set of three, Whipoorwill Ledge. April 5, first set of two, May 9, second set of two, Hell Gate.

BUTEO BOREALIS: April 1, three sets of two, Broad Brook, Holme's Woods, and Quinebaug River. April 13, two sets of two, Lime Rock Woods and Rix Rude's. April 17, set of two, Lantern Hill.

B. LINEATUS: April 13, set of three, The Common's. April 18, two sets of three, Brick Yard and Boggy Meadow. April 20, set of four, Peg's Chase, two sets of three, Sunnyside and Spicer Ledges. April 21, sets of two and three, Ox Hill and Gallows Hill. April 22, set of three, Hell Gate. April 26, three sets of three, Bowen Hollow and Fairview Reservoir. April 27, set of two, Cranberry Bog. May 4, set of two, Hopkin's W. May 10, set of two, Sunnyside. May 12, set of three inc., Wawecus Hill, two fresh eggs Whipoorwill Ledge. May 29, one inc., egg, Hopkin's W. June 1, set of two inc. Hell Gate.

B. PENNSYLVANICUS: May 10 and 11, two sets of two, Folly-Works Brook.

ACCIPITER COOPERI: May 4, set of four, Cedar Swamp. May 11, set of five, Gate's Pond, three sets of four, Hell Gate, Folly Works Brook and Brown's Mountain. May 18, one fresh egg, Mohegan, set of five, Spicer Ledges. May 29, five fresh eggs, Kinney's W. June 18, set of five inc., Gardner's Lake.

A. FUSCUS: June 7, set of three, Cow Bridge.

CIRCUS HUDSONIUS: First set of four May 18, second set of five June 2, and third set of three June 18, Long Society. May 18, two sets of five, Broad Brook and Ayer's Factory. May 23, set of five, North Stonington.

PANDION CAROLINENSIS: Set of two, May 18, Sandy Hollow. May 5, set of two, old Whale Rock Spindle, Fisher's Island Sound.

Some Californian Raptors.

PART II.

BY A. L. PARKHURST, SAN JOSE, CAL.

April 4. Flushed a Batco from her lofty home in a tall Sycamore. She merely left the nest and perching on a limb near by, eyed me inquisitively. In the approaching twilight I could not identify her, but felt sure that she was not the Western Red-tail. As I was unarmed I could not decide the matter then.

May 8, I again visited the place and secured the bird, which proved to be the Western Red-tail in the full adult plumage. Last year this same (?) pair of birds occupied this nest and reared their young. They were then in the lighter and common plumage. This year both wore the dark plumage. I secured the set of three thickly marked eggs, which were almost round.

April 19. Found a set of five fresh Sparrow Hawk's eggs in a natural cavity in a Sycamore. The female quietly left the nest and did not reappear. The male was extremely bold. Poising in the air about thirty feet above me, he would close his wings and dart down within a foot of my head, gracefully shooting past and upward, describing a parabolic curve. This was repeated many times, accompanied by loud screaming notes. So threatening was the bird in its attitude that I was momentarily expecting to be struck in the face.

April 19. Found a set of the Barn Owl of five eggs in a cavity in a Black Oak. The bird quietly left the nest at my approach.

April 26. Took a set of the Cal. Screech Owl, four eggs, in a cavity in a Sycamore Tree. The old bird was caught on the nest but promptly liberated. I have taken one or more sets of eggs from this nest each year for five years. The earliest a set of three fresh eggs was taken April 7, 1883, the latest a second set of two badly incubated eggs was taken May 27, 1882.

May 2. Found a nest of Barn Owl with one young and six eggs in various stages of incubation, but all nearly ready to hatch. This set was in the same nest as the one taken Feb. 22.

May 3. Found a nest of Barn Owl in a cavity in a Sycamore with five nearly fresh eggs.

May 4. Found a nest of Burrowing Owl with six fresh eggs. It was composed entirely of horse manure in a squirrel's hole. The nest itself was in a neat round chamber near the surface of the ground and the burrow slanted upward just before reaching the nest. The eggs of this Owl are rather small in comparison with the size of the bird.

May 12. Found a set of Cal. Screech Owl,

in a small cavity in a Sycamore, three eggs. The female refused to leave the nest, but offered no resistance when I removed her.

May 20. Found a nest of the Barn Owl in a Black Oak with seven eggs not badly incubated. I have noticed in every instance that the Barn Owl begins to sit as soon as the first egg is laid and that generally two eggs are laid on successive days, then a couple of days elapse and two more are laid and so on until the set is complete.

In April the creeks rose high, washing away the banks, and with the banks many Owl holes. Yet as soon as the waters receded the Barn Owls dug new holes. On examining them I found the size and direction very irregular, showing that the birds avoid the hard portions of the banks. The burrows, however, extended in quite a distance, so that the eggs could not be obtained.

On Six Species of Hummingbirds of the Pacific Slope.

BY CHAS. W. GUNN, GRAND RAPIDS, MICH.

The past Winter I spent adding to my ornithological collection at Colton, San Bernardino county, Southern California, and as of late there have appeared in the O. & O. several lists on the birds of that section, perhaps a few notes on the Hummingbirds would also be acceptable.

Trochilus alexandri, Black-chinned Hummingbird. This species first made its appearance in the valley April 8th, when five specimens were taken, and from this time until my departure in June it was abundant. No nests were taken and I am unable to say whether it breeds here or not. Its favorite resort was a dead twig in the top of some small bush, where it would sit for hours, occasionally darting after a passing insect, which constituted its only food, and at no time did I observe it feeding on the flowers, of which the valley was one vast field.

Selasphorus rufus, Rufous-backed Hummingbird. April 5th I made a journey to Riche's canon after Hummers, and in the lower part of the canon where we found the black sage in blossom, Hummers were abundant, especially this species which was represented by hundreds. A few weeks later on making a second trip to the canon they had entirely disappeared on their northern migration. Mr. R. B. Herron informs me none remain in the valley during the Summer, all passing to the north to breed.

Selasphorus allenii, Allen's Hummer, Not common, five specimens taken, found in company with *S. rufus*.

Selasphorus annæ, Anna's Hummingbird. Com-

mon and resident, found breeding as early as April 7th.

Selasphorus costæ, Costa's Hummingbird. First taken April 5th, and in a few days it became common all along the foot hills. Nest and eggs taken on Slover mountain April 29th, attached to the almost perpendicular branch of a sage bush, about five feet from the ground; being composed mainly of sheep's wool, the exterior covered with very small leaves and an occasional feather. The nest measuring $1\frac{1}{2}$ inches in diameter by $1\frac{1}{4}$ inches in depth, the cavity being .75x.50.

Stelula calliope, Calliope Hummingbird. This miniature Hummer was very rare, but five specimens being taken by our party of five during the season.

The Olive-backed and Hermit Thrushes in Michigan.

BY DR. MORRIS GIBBS.

Hylocichla ustulata swainsoni (Caban.) Ridg.—Olive-backed Thrush, Swainson's Thrush.

This is one of our rarer Thrushes, and its habits are but little known, even to the close observer. The information as regards arrivals and departures during migrations is meager, for the species never appears in any numbers, and many collectors pass an entire season in the woods without seeing a specimen. It is a silent, retiring bird, and though a straggler occasionally enters the city and remains some time in private dooryards, it is as a rule scarcely seen. Arriving from the south in the early part of May, the Olive-backed leisurely passes northward, but few remaining south of the 44th parallel. While migrating its presence is rarely detected, except by chance or the closest search by the collector. Although well distributed throughout the larger part of the Lower Peninsula, it is only locally dispersed even in those localities where it remains to breed.

Cabot, in his list of birds of Lake Superior and vicinity, and J. H. Steere, in his list of the birds of Sault Ste. Marie, omit this species. It is, however, undoubtedly found in the northern parts of the State during the nesting season, and most certainly as a migrant.

The nests are, so far as observations extend in the State, placed in bushes a few feet from the ground. It has been my good fortune to secure one set of eggs. The nest was placed in a bush about four feet from the ground, and was composed entirely of twigs, fibrous roots, bark and weed strippings. The structure is much more artistic in workmanship than the nests built by any others of the genus. Less bulky than that of the familiar Catbird, it is somewhat similar in

respect to material, and yet looks entirely different, not being so compact, but far neater in appearance.

Three eggs, comprising a set taken in Kalamazoo County, are faintly marked with obscure brown blotches, principally at the larger end; but in four eggs from Wexford County, the entire surface is more or less thickly spotted with amber. In ground color, the eggs more nearly resemble those of the Catbird than any other species, but are not of so dark a shade of green. The Swainson's Thrush is the only one of the genus which lays spotted eggs.

In the Fall migrations, the birds are found in the southern counties as late as October 1st, and a few stragglers occasionally even later. This Thrush is undoubtedly the most eccentric in its geographical range of any in its family famed for migrating. We learn that the Olive-back is known to Winter in Venezuela, while its northern haunts extend (probably) nearly to the Arctic circle.

Hyllocichla unalascae pallasi (Cab.) Ridgw.—Hermit Thrush, Rufus-tailed Thrush.

Next to the Robin this is the first species to arrive in the Spring, and it occasionally appears as early as the last week in March, although the Hermits are rarely seen in any numbers till the middle of April. The species appear to migrate with great deliberation, and specimens can often be found loitering in the southern counties as late as May 10th. It is a common occurrence to observe numbers about the dooryards in villages, and even in sequestered favored locations in large cities during the latter part of April and early May. These silent wayfarers often make a neighborhood their temporary home for a week or more. Such protracted stays occur both in Spring and Fall, the autumnal migrants usually remaining with us for several weeks, the severe weather of November often finding the hardy fellows frequenting hedgerows and thickets at the edges of woods.

Though silent while migrating, with the exception of the call note occasionally uttered, the birds break into full song on reaching the breeding haunts, and from May 15th to July 20th the woods are filled with the sweetly modulated notes of these charming singers. The ceremony of mating is accomplished with expedition, and soon after the birds are at their nest building. As yet I have not heard of a nest being found south of 43° north latitude, and it is reasonable to suppose that the species very rarely, if ever, remain as a Summer resident in our southern counties. It is only in the middle and northern portions of the

State that the Hermit is found plentiful, where in Pine lands its beautiful song can be heard almost constantly.

The nest of this species is more difficult to find than that of any other member of the family. Placed on the ground, always in a retired situation, concealed by small bushes, weeds and grass its location can only be discovered by the accidental flushing of the old bird as you walk near the little home where she patiently sits, or by watching the parents as they bring material for the nest. The latter method would be next to impossible, for the birds are unusually shy and very difficult to study. A nest found by Mr. W. A. Gunn, May 20th, 1879, was entirely concealed by a fallen withered Pine branch. A nest which came under my notice June 10th, 1882, in Montcalm County, was placed beneath a small bush, and the rim of the structure was even with the surface of the ground.

The eggs in every instance were three in number, and are of a beautiful blue color, much resembling in form and color those of the tawny Thrush, but a little smaller. The nest is generally composed of grass, fibrous roots, fine twigs and some moss. Those that I have met with are not strongly put together.

This beautiful singer is one of our most common birds north of 44°, where, though not known by the settler, it trills sweet music among the stately Pines and gaily passes the pleasant Summer months among Nature's wildest surroundings.—*Forest and Stream*.

Notes on Birds of the Sea Islands.

BY WALTER HOXIE, FROGMORE, SO. CAR.—PART II.

Turnstone, (509,) common migrant. Have taken it in July, but not found it breeding. Returns in October and lingers till frost.

Wilson's Snipe, (526 $\frac{1}{2}$), Winter visitor, October to April. Partially returns in mid-winter, but a few can always be found. The ponds and marshes of St. Helena cannot be excelled for Snipe shooting.

*Red-breasted Snipe, (527,) arrives about the 10th of April and returns as early as the end of July, lingering till frost.

Robin Snipe, (529,) from the first week in April till the middle of May. In the Fall from September to the middle of November. About a week earlier in the Spring than the preceding and does not arrive in the Fall till a full month or more later.

The Curlew Sandpiper (540,) is ascribed to this locality, but I have not yet taken it.

Red-backed Sandpiper, (539*a*.) Have taken it in every month from October to June.

Jack Snipe, (534,) migrant. Arrives about the end of March and is about six weeks in passing. Returns the first of August, staying about two months.

Least Sandpiper, (538,) About the same dates apply to this as to the preceding.

White-rumped Sandpiper, (536,) the latest migrant of all the Sandpipers, and also the most rapid in the Spring transit. Passes through the last of May, being with us only a week or ten days. Returns the last of October more leisurely in its movement, a few lingering into the next month.

Sanderling, (542,) passes quite rapidly about the middle of April. In the Fall returns before the middle of August and lingers well into the Winter.

Semipalmated Sandpiper, (541,) our commonest Sandpiper, passing through in myriads in May and September. A few linger all Winter about the sea beaches.

Stilt Sandpiper, (528,) I have been informed of its occurrence in Spring, but have not taken it myself.

Willet, (552,) resident. Breeds in May. Two broods may occasionally be raised.

Greater Yellow Legs, (548,) Winter visitor. Have taken it every month from the middle of October to third week in July.

Lesser Yellow Legs, (549,) not so common as the preceding. Retires during the Winter and migrates quite rapidly in the Spring.

Solitary Sandpiper, (550,) common in April and August.

Spotted Sandpiper, (557,) from the last of March to the last of May. Returning as early as the first week in July, and lingering about three months.

Field Plover, (555,) rare in April and August.

Buff-breasted Sandpiper, (556,) I think I have taken this bird once, in 1869.

Godwit, (543,) not uncommon. Have taken it every month from August to May.

Long-billed Curlew, (558,) resident. Less common than formerly.

Hudsonian Curlew, (559,) rather rare Winter visitor.

King Rail, (569,) common resident, but partially retiring in Winter.

Clapper Rail, (571,) abundant resident.

Virginian Rail, (572,) very rare in Winter.

Sora Rail, (574,) scarce in Fall and Winter. I have not yet detected the little Black Rail.

Yellow Rail, (575,) taken in May, 1869, on Ladies' Island.

Coot, (580,) not common. Have once taken it (Nov. 12,) in the salt marsh; but usually frequents fresh ponds and swamps.

Florida Gallinule, (579,) common. Retires in the Winter. Breeds in fresh ponds and swamps, making a bulky nest often in a low tree. Eggs laid early in May.

Purple Gallinule, (578,) not as common as the preceding, but still by no means rare. Quite plentiful on Port Royal Island.

The Mallard, (601,) common in the larger fresh ponds from early in November till warm weather.

The Black Duck (602,) arrives a little later and departs earlier. Also frequents salt and brackish water more than the Mallard.

The Pintail, (605,) very rare.

The Green-winged Teal (612,) arrives late in Summer, and the Blue-winged (609,) about the same time. Both are called Summer Duck while here. I have taken the Blue-winged in Winter, but both probably pass much further south. The Green-winged probably takes a more inland route than the others, at least in the Spring migration, as I have never taken it then.

The Shoveller, (608,) not rare in Winter. Have taken it as late as May 13, (1869).

The Gadwall, (604,) rare. Both this and the Pintail, I am told, are quite common further inland.

The Widgeon, (607,) quite common. Arrives and departs with the Mallards, and associates with them while here.

The Wood Duck, (613,) rare. Have never seen but one shot—a young male.

The Scamp (614,) and Blue-bill (615,) are found in immense flocks in all the creeks and sounds during the Winter. Called here Raft Ducks. Scattered parties and individuals visit the fresh ponds in the coldest weather. Most numerous after Christmas. But few remain later than April 1st.

The Canvas-back (617,) and Redhead (618,) are occasional visitors throughout the colder part of the year. Both called Canvas-back.

The Bufflehead (621,) arrives in all the large creeks and sounds in November. Called Teal, as is also the Ruddy Duck (634,) Both often visit the fresh water in cold weather in company with the "Raft Ducks."

Some of the Scoters are said to have been taken in Trunkard Sound, but they do not seem to linger in these waters.

The Sheldrake (636,) and Merganser (637,) are about equally common. They seem to be very irregular in the times of arrival and departure,

being in some years plentiful early in the season, and in others few or none are seen till well toward Spring.

The Hooded Merganser (638,) is very common, arriving with great regularity the last of November, and leaving before the middle of March. Called here Shagpoll. The male in full plumage is quite rare. While here they feed mainly on acorns and acquire a very fine flavor.

The Brown Pelican (641,) is not at all uncommon except in the breeding season when it retires farther South. The same probably may be said of both the Cormorants (643 and 643*a*.) I never see either of them after the first of May. In August a few young arrive. Both are common soon after about the outer sounds and islands and remain all Winter. I have never found specimens here which intergrade and must consider *P. floridanus* a valid species until I do.

I have never seen the Gannet, (650,) but it is doubtless an occasional visitor.

The Anhinga (649,) may breed sparingly on some of the larger wild islands. I have seen it on Edding Island as early as the last week in March. It breeds regularly on Port Royal Island.

The Black-backed Gull, (663,) rare in Winter.

The Herring Gull, (666*a*.) common all Winter. A few Summer in young plumage.

The Ring-billed Gull, (669,) rather common all Winter and late into the Spring.

The Laughing Gull (673.) breeds. Retires early in the Fall, but some of the young remain all Winter.

Bonaparte's Gull (675.) A plentiful migrant in Spring and Fall. A few young remain about all Summer and depart with the regular Fall migrants.

The Royal Tern (681,) may breed sparingly, but is scarce from May to August, and partially retires in midwinter.

The Sandwich Tern, very rare. Have never obtained it except in Spring.

Wilson's Tern, (686,) occasional in Winter.

Forster's Tern, (685,) common in Spring and Fall. I on one occasion suspected it of breeding.

The Roseate Tern, (688,) very rare in Spring and Fall. This and the Sandwich seem to pass this locality very rapidly.

The Least Tern, (690,) abundant, breeds. Retires about the first of October and returns in March.

The Short-tailed Tern (693,) is very rare in Spring, but the young are common during the whole of August and September. The arrival and departure of the Fall migrants is singularly simultaneous. One day none are to be seen. The next they are hovering over every pond and

creek in small parties of a dozen or more. As suddenly they are all off. Not one lingers behind the rest of the company.

The Skimmer (656,) undoubtedly breeds. Common all Winter in immense flocks.

The Loon, (736,) quite common in young plumage all Winter. Called "Bad Luck Bird" by the natives, who will not speak of it, or if possible even look at it when they meet it on a journey by water. The same superstition attaches also to the Alligator, which they will only speak of in a conciliatory way, as "an old person."

The Red-throated Diver, (740,) rare in Winter.

The Dabchick, (735,) very common in August and September. The Crested and Horned Grebes are common all Winter.

Brief Notes.

NOTES FROM MANHATTAN, KAN. JUNE 7, 1884.

—Saw a White Pelican sailing in circles above the college orchard. It was probably delayed in migration by accident.

Oct. 11, 1884.—Saw a large flock of Cowbirds in chase of a Red-tailed Hawk. They attacked him from above, after the manner of the King-bird, though not so vigorously. He seemed anxious to avoid them, and often changed his course; but they pursued him until out of view.

Dec. 27.—While hunting, I saw a male Cardinal Grosbeak eating a field-mouse. Several others attempted to take it from him, but were unsuccessful. At my approach they left it lying on the snow. It was about half consumed.

Jan. 14, 1885.—Weather very cold. Opened the collecting season by taking an egg of the Great Horned Owl. This had been laid several days, and was frozen. The egg was laid in confinement in this city. The early date of laying is remarkable, as the Owl-house, although sheltered from the wind, is open on the east side, and the temperature within the cage differs but little from that outside. The three Owls in the cage fought the intruder savagely, when he attempted to remove the egg. It was secured by driving the Owls into one compartment of the house and closing the door between it and the other, while the egg was drawn out with an iron poker. This is the third season these birds have laid in confinement. (See Vol. IX., page 127).—D. E. L.

NOTES FROM NORTH CAROLINA.—PURPLE GALLINULE, (*Ionornis martinica*). A specimen of this rare bird was procured by Clarke & Morgan, at New Berne. The bird had been caught alive, in a ditch running through some marshes, on Neuse River. The fishermen who caught it kept it alive several days and then sold it to

Clarke & Morgan, who mounted it and it is now on exhibition in Raleigh.

HORNED LARK, (*Eremophila alpestris*). Four of these birds were lately shot near Raleigh, by Jim Busbee, a boy of about fourteen. They were in a flock numbering in all about eighty or a hundred. Is not this rather southerly for them to be found?

HOODED MERGANSER, (*Lophodytes cucullatus*). A very fine male specimen of this bird was shot on or about Jan. 9th, near New Berne, and preserved by Clarke & Morgan of that city. The only other instance of its occurrence I know of, was a female killed a year ago near New Berne.

FISH DÜCK, (*M. m. americanus*). The commonest of the Merginæ round New Berne, but not common at that, and specimens in full plumage are scarce. A pair of males in full plumage were shot there the first week in January and preserved by Clarke & Morgan.

TITLARK, (*Anthus ludovicianus*). Fairly plentiful in eastern Carolina during the Winter months.

PINE FINCH, (*Chrysomitris pinus*). Have found these birds to be fairly common here this winter, having seen them several times since last writing, and always in company with the Goldfinches, (*Chrysomitris tristis*).

Observed the following species at New Berne during the first week of January: Kingfisher, (*Ceryle alcyon*), Thrasher, (*Harporynchus rufus*), White-bellied Swallow, (*Tachycineta bicolor*), Towhee, (*Pipilo erythrophthalmus*), Rusty Grackle, (*Scolecophagus ferrugineus*), etc.—*H. H. & C. S. Brimley, Raleigh, N. C.*

BLACK-CHINNED SPARROW, (*Spizella atrigularis*). A fine male of this rare species was shot by Mr. R. B. Herron on Slover Mountain, (near Colton, San Bernardino Co., Cal.,) April 28th, and a second specimen taken by myself in the same locality the 29th. Under date of May 2, 1884, Mr. L. Belding writes me from San Diego, as follows, regarding this species: "Frank E. Blaisdell of Poway Valley, in this county, shot one a few days ago, and Mr. F. Stephens sent me a list of San Bernardino birds recently, in which it is given as a very rare Summer resident of the foothills."—*Chas. W. Gunn, Grand Rapids, Mich.*

EGGS OF THE CARACARA EAGLE.—I have been presented with a beautiful set of eggs of the Caracara Eagle, (*Polyborus cheriway*). The nest was found in Burnett County, Texas, in 1882, (exact date not known,) in a large Live Oak situated solitarily on a bare hill, and was about twenty feet from the ground, composed mainly of sticks and lined with coarse grass, leaves and weeds. It was large and bulky with slight depression. The

eggs measure 2.44 by 1.86, and 2.38 by 1.86. The shorter egg is the most inclined to be pointed at one end, but it is hard to tell which is the small end of either of them. The ground color of the longer is considerably lighter than that of the shorter, but both are of a rich cinnamon brown, thickly blotched with brown of different shades.

The longer has one side entirely free from blotches, the bare part extending from one end to the other so that by holding the egg in a certain position with one end slightly inclined from you, there is not a blotch to be seen. The color there is rather lighter than the real ground color of the egg. When taken from the nest they were fresh and the same color that they are now, so the variation between the two sides of the egg is natural. I would like to know if that variation between two sides of an egg is a common occurrence. It certainly makes a very queer looking egg.—*Prestiss Baldwin, Cleveland, Ohio.*

IPSWICH SPARROW.—I would like to inform you that on March 24, 1883, I shot a male Ipswich Sparrow, (*P. princeps*), and on Nov. 26, 1884, another. The first of these has been identified by Prof. Verrill and Mr. T. B. Osborne, and the second is just like the first, except that the yellow above the eyes is almost entirely wanting, and the plumage is altogether more dirty looking.—*Louis B. Bishop, New Haven, Conn.*

ALBINO RED SQUIRREL.—I have just mounted a pure white Red Squirrel, shot near this place; also mounted a Ruffed Grouse, about one-third white, taken a short time ago.—*J. C. Cahoon, Taunton, Mass.*

BITTERN.—On Dec. 11, 1881, I obtained a fine Bittern, (*Botaurus lentiginosus*), which rose from some rank grass on a piece of boggy ground I was passing over. Examination showed that one wing had been broken but was entirely healed. This, perhaps, may explain why it was detained until so late in the season.—*S. Albert Shaw, Hampton, N. H.*

BLACK SWAN'S EGGS.—I have just received from Tasmania some beautiful sets of freshly taken and perfectly prepared eggs, which were packed and labeled with exceeding care. Largest among these are the eggs of the Black Swan, (*Chenopsis atrata*). They are three in number, and of a light blue green color, twelve inches in oblong circumference and nine around the bulge. The Swan are less abundant in Tasmania than a few years ago when their eggs were used largely for culinary purposes. These eggs were obtained from Adventure Bay Lagoon, Bruin Island in 1884.—*Mrs. S. L. Oberhyltzer.*

CORRESPONDENCE.

The Destruction of Birds for Millinery Purposes.

EDITOR O. AND O.—Let me beg to assure W. W. C., that my silence has not been caused by a desire to “back out,” and that Mr. McCormick’s letter is not “replying by proxy.” Although W. W. C., has confused my statements somewhat and supplied me with several more affirmations than I made, yet I must confess myself largely to blame for not having more sharply defined the two entirely distinct questions at issue. These were—is the destruction of birds more than a purely sentimental grievance? and—does man destroy more birds than do the birds of prey?

To the first I replied that the grievance was more than sentimental, while in answer to the second I unhesitatingly affirmed that he *does*. This constitutes the “italicized assertions” and various affirmations W. W. C., credits me with. From the heading of my letter it is apparent that the phrase “collectors or professional taxidermists” includes all the feather hunters and “bird stuffers” who are engaged in supplying the millinery trade.

There is nothing in the second proposition limiting it to song or insectivorous birds, as W. W. C., seems to imply. It is simply a question of the comparative destruction of all birds by man and birds of prey.

First, a word regarding the food of the Raptors, a matter which has a most important bearing on the present discussion. As a naturalist, W. W. C., must be well aware that birds form but a small portion—an entrée so to speak—of the bill of fare of Hawks and Owls. Small mammals, frogs, snakes and insects,—especially grasshoppers,—will be found to preponderate in nearly every crop examined.

Now for answers to a few of W. W. C.’s questions, some of which have been replied to by Mr. McCormick. Although he has touched somewhat on “the boys who are anxious to have collections of eggs,” let me add a word of personal reminiscence. In my own class at school were at least eight boys who had pretty good sized collections of eggs. Not one of these boys ever developed into a naturalist, and the eggs—representing many hundreds of birds—eventually “went to smash.” I recall two large nesting places of the Purple Grackle that we broke up *completely*, and much damage done to the Red-winged Blackbird. Moreover, having been indirectly connected with the “egg business,” I can speak positively about hundreds, nay, thousands, of eggs being offered for sale by those who have not the slightest interest in them, other than a pecuniary one. It would hardly seem necessary to reply to such a question as “What insectivorous birds are so largely used for millinery purposes?” since a glance at any milliner’s window will ordinarily show the Red-winged Blackbird, Bluebird, Meadow Lark, Barn Swallow, Oriole, Cedar Bird, and many well-known species of Flycatchers and Warblers. In fact, an inspection of the shop windows this Fall shows that *no bird* is too large or too small, too plain or too pretty to escape being used for decorative (?) purposes.

But it is not alone insectivorous birds that are beneficial to man, many even which are strictly graminivorous rendering most excellent service by eating the seeds of harmful weeds, and many birds of prey being valuable from the number of field mice, etc., they destroy. In Great Britain the Gulls are protected on account of the services they render. This must be borne in mind later on, just now the mention of graminivorous birds reminds me that last season one New York dealer had in store 6,000 skins of the Snow Bunting.

How long does W. W. C., suppose it would take the birds

of prey to destroy an equal number? Owing to the extreme difficulty of obtaining facts—a difficulty of which W. W. C., is doubtless well aware—he must kindly excuse me if I go abroad in quest of them. This he will the more readily do since as a naturalist W. W. C., would not wish to see any species of bird extirpated, a thing which has come to pass in England.

The same causes which exterminate birds in one country will, if unchecked, do so in another, and our birds are no more limitless than our trees.

Observation of what has happened elsewhere may serve to guide us here as it is much cheaper to take experience at second hand. Rev. H. B. Tristram testified in 1879, before the Committee on Wild Birds Protection, that *half the species* of English Waders had been exterminated, as well as other birds, which, like the Kingfisher *were shot for the sake of their feathers*. Can W. W. C., instance one species which has been utterly destroyed by birds of prey throughout an area as large as Great Britain? Incidentally Mr. Tristram mentioned having seen 200 Redbreasts, (*Erythraa rubecula*.) in one shop, and a dress trimmed with the skins of 500. Before this same committee we find Mr. Bimmer, formerly Justice of the Peace in Canada, testifying that the Orioles and Humming Birds had been nearly exterminated in his district by feather hunters; but that since the passage of a protective act they were again on the increase. This is a case right to the point, and comes very near home. Coming nearer still is the communication to the *Washington Star*, stating that the celebration of the “Oriole” had caused the extermination of its namesakes around Baltimore. This I give with some hesitancy, the article not being at hand for verification. Prof. Newton states in the *Quarterly Review* for January, 1881, that in 1868 “the Kittiwake Gull at Flamborough was threatened with speedy destruction * * * one man boasted that he had killed 4,000, while another had taken an order from a London firm for 10,000. * * * An order for 1,000 a week was given and accepted by the lessee of Ailsa Craig.”

True, this happened abroad, but its parallel exists right on our own coast among the Terns on Cobb’s Island, where for the past year or two the feather hunters have been hard at work: In 1883 the Caspian Tern was still abundant there, but this year Mr. S. of this city failed to secure a *single specimen*. The birds, old and young, had been systematically slain throughout the breeding season, the nestling being left to starve, until the above result was arrived at. As these Terns are retailed mounted for 65¢—see ad. in *Washington Republican*—the first cost can be imagined. In the same ad. I find “handsome wings” 18c. Since then the price has been lowered to 5c. Does this imply any extensive destruction of small birds?

I regret my inability to respond to W. W. C.’s challenge and produce the figures that would give some little idea of the number of bird skins used in the trade, but as the dealers decline to talk on the subject it is as impossible for me to do so as it would be to tell how many ladies wore hats trimmed with birds. But when a single dealer employs seventeen assistants to prepare birds for the trade, it is easy to see that many thousands would be needed to keep them busy. And that they *are* busy anyone who has seen the heaped up tables of dead birds can testify. The dealer who had the 6,000 Snow Buntings had other birds in proportionate numbers and if W. W. C. wished to purchase from 10,000 to 100,000 birds for millinery purposes, he could readily do so. There is difficulty regarding the decrease of birds in any given locality, this being a question that it requires thoroughly good testimony to decide.

The decrease of Gulls and Terns on the New Jersey coast, of Egrets and Pelicans in parts of Florida, of the Swallow in some portions of Long Island and of the Parakeet in the southern states generally, are the only cases that I can at this moment lay my finger on.

In my turn I would like W. W. C. to answer a question or two.

Does he consider the members of the A. O. U. "gentle idiots" because they have entered a protest against the slaughter of birds?

Can he adduce one case where the numbers of birds have been lessened by the ravages of birds of prey?

Does he not know plenty of instances where birds have been perceptibly thinned out by the direct agency of man?

Does he think it best to wait until his house is burglarized before putting locks on the doors?

Is he not needlessly prolonging this discussion when—judging by inference—he has simply to produce his facts to bring it triumphantly to a close? **FREDERIC A. LUCAS.**

APROPÓS of bird destruction I have just looked over a drawer of miscellaneous skins and find: 45 insectivorous, 216 graminivorous, etc., 28 Shrikes, 6 Hawks, 1 Owl. That is a fair sample of the work of one collector. Can any sane man prove me a fell destroyer on that confession?—*Walter Hazie, Frogmore, S. C.*

DO WILD BIRDS EAT THE POTATO BUG? I notice in the O. and O. for January that "W. W. C." seems to doubt that any wild bird will eat the Potato Bug. One or two instances have come under my observation:

On June 27, 1882, a Quail was brought to me to be mounted, and in the process of skinning, I discovered that the crop contained a number of Potato Bugs. On inquiry, learned that the bird had been shot in a pasture adjoining which was a large field of potatoes.

July 20, 1881, while at work among potatoes, I observed a Chipping Sparrow hopping along between the rows, frequently picking up something from the ground. By close watching saw him pick up several larvae of the Potato Beetle and devour them.—*S. Albert Shaw, Hampton, N. H.*

DERMAL PRESERVATIVE.—"In your last issue of the O. & O. the article contributed by H. M. hits my case exactly. About one year ago I sent to Mr. Maynard and procured some of his preservative, thinking that if it would answer the purpose, it would be a great deal safer to have around, than a poisonous preparation.

In the Spring I made up several skins of rare Warblers, that could only be procured during the migration here, and left them exposed during the drying process. Upon my examining them a few days later I found them all spoiled. Later in the Fall I used the preparation on some Squirrel skins and as a result I have some mutilated Squirrels. The above were left exposed, but some other specimens that were not exposed but kept in cases, are all right yet.

I have specimens that were prepared with dry arsenic and others with arsenical soap that have been exposed for several years and no insects have ever damaged them, so I have put the Dermal Preservative aside, and am now waiting for something yet to fill the place of arsenic.

While I have no doubt Mr. Maynard's preservative will preserve specimens all right if they are not exposed, yet from experience I know it will not if the specimens are exposed.

I hope to hear from others on this subject, and to find if possible where the trouble lies.

I do not wish to do any injustice to Mr. Maynard, but it is a matter that is of importance to science, and also to the public.—*A. I. Johnson, Hydeville, Vt.*

I must say a few words and give you a little of my experience with "Maynard's Dermal Preservative." I used only a small quantity but used it thoroughly, though I must say with not much faith. Perhaps that is one thing required, as I have lost several specimens that were prepared with it, while in the same cabinet those prepared with arsenic are not disturbed. I also know of one other that has used the same with similar experience so that Mr. Merrill is not

alone in the loss of specimens from the use of Dermal Preservative.—*Chas. K. Reed, Barrington Centre, R. I.*

RED CROSSBILL IN INDIANA. Mr. Fletcher M. Noe of Indianapolis calls attention to a note of Mr. Everman's in the "O. & O." for April '83, in which, recording his capture of *Loxia curvirostra* on Feb. 10th. of that year, he says they were the first recorded in that State. Mr. Noe says it was his good fortune to secure two males and one female from a flock of eleven on the 5th of the same month. This was probably the flock that was afterwards seen by Mr. Everman.

HOW TO SOFTEN DRIED SKINS. (*F. M. R., Farmington, Me.*) "Remove the stuffing; fill the interior with cotton or tow saturated with water, but not dripping; put pads of the same under the wings; wrap the bill and feet and set the specimen in a damp, cool place."

HAWKS AND OWLS IN VERMONT. *C. S. Phillips, Glover, Vt.*, says a friend of his in Westmore, Vt., caught twenty-one large Hawks and thirteen Owls in a trap set on an old stub—which our correspondent, justly says seems a very valuable stub.

HYBRID DUCK. *E. C. Greenwood, Ipswich, Mass.*, reports having bought a strange Hybrid Duck in that town, probably a cross between a Black Duck and Mallard. It is particularly fine and interesting.

BOSTON—REVIEW FOR JANUARY.—Hawk Owls, usually considered rare, have been quite plentiful from Maine to Minnesota. We have received many letters offering them for sale. Mr. Vickary, a well-known taxidermist of Lynn, Mass., reported one taken near that locality. We think that it must have taken a circular route, as we understand Mr. Bowler of Bangor has established a *dead line* across that section. Barred Owls have been a drug in the market, at 25c. White, Short, Long Eared and Great Horned are scarce. We have not heard of a single capture of the Snowy Owl this season.

There has been a noticeable absence of the Pine Grosbeak, which were so plentiful last winter, and Snow Buntings have not appeared in any quantity. In December fine Mallards could be bought at 25c. Several barrels of Blue Grouse were brought in, but as the shippers had taken the precaution to chop off all heads, they and *we* were a sorry set. We succeeded in finding just one female that was perfect. The flesh was white, juicy and tender, in our opinion far surpassing the common Grouse. Sharp-tailed Grouse are nearly as plentiful as the Pinnated. No collector in New England can have an excuse for not improving the opportunity by placing a pair in his cabinet.

Two or three invoices of Ptarmigan from Labrador, arrived within the last week, and were offered at the stalls at \$1.50 to \$2.00 per pair. From the way several prominent taxidermists are prospecting in the vicinity, we are led to believe that more than one eye is on a future corner in the market.—*F. B. W., Boston.*

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No. 3.

Mississippi Valley Migration.

BY PROF. W. W. COOKE, MOORHEAD, MINN.

The migration season of 1885 is close at hand in the northern part of our district, while in the more southern localities it has already commenced. The prospects for success in its study are more flattering than ever. The number of observers at present is much greater than at this time last year, and their average ability ranks much higher. But while almost every mail brings the names of new observers, there are only a few of these from the localities mentioned in the January "O. and O." Hence we would like to repeat both our request and also that of the editor, *that any one in or out of our district, who knows the name of any ornithologist—and in this case we mean by ornithologist, any one who knows the commonest birds by sight and by name—in the places named in the January "O. and O." will please send their names to me.*

Before migration is fully started this Spring, it may be well to record some of the facts brought to light last year, though they are concerned with distribution rather than the migration. We will begin with the,

PRAIRIE HEN—PINNATED GROUSE, (*Cupidonia cupida*). The distribution of this species is interesting. Formerly common in much of the eastern United States, it has now been exterminated from about eastern Illinois eastward. Its northern limit has always fallen short of our northern boundary until last Summer, when they invaded Manitoba. Mr. C. W. Nash of Portage La Prairie, says: "This last Autumn we had a curious influx of the Pinnated Grouse. I imagine that they, like some other birds, are following up civilization, for until last year (1884) none were seen by the Indians and half-breed hunters." It has also been gradually spreading westward, and during the years before the great extension of the railroads, kept just about abreast of the settlements. Dr. Coues, writing in 1874, says that it then inhabited the eastern half of Minnesota, but

that he had "no reason to believe that it occurs at all in northwestern Minnesota or northern Dakota." Six years later I found it abundant up to 47°, and only forty miles from the Dakota line. I also heard of its having appeared across the Red River at Grand Forks, Dak. Last Fall I questioned several hunters in the vicinity of Fargo, Dak., and they all agreed that the Pinnated Grouse was about as common as the Sharp-tailed. It has worked its way about sixty miles west of the Red River, along the line of the Northern Pacific Railroad.

At the same time it has spread from middle to western Kansas, and from eastern Texas to Coleman County, a little west of the middle of the State. It is found abundantly in either the typical or "lesser" form, to the middle at least of Indian Territory.

The Prairie Chicken is commonly counted a resident bird, and so it is through a large part of its range, but in the northern portions of our district, especially in Iowa, a regular though local migration takes place. This has been mentioned by former writers, and last year a special study was made of the matter. Many observers unite in testifying to the facts in the case, and what is more important, there is no dissenting voice. One of them hardly exaggerates when he says that they migrate as regularly as the Canada Goose. Summing up all the information received we get the following results: In November and December, large flocks of Prairie Chickens come from northern Iowa and southern Minnesota to settle for the Winter in northern Missouri and southern Iowa. This migration varies in bulk with the severity of the Winter. During an early cold snap, immense flocks come from the northern prairies to southern Iowa; in mild open Winters the migration is much less pronounced. During a cold, wet Spring the northward movement in March and April is largely arrested on the arrival of the flocks in the northern Iowa; but an early Spring with fair weather will find them abundant in the southern tier of counties in

Minnesota, and many flocks will pass still farther north.

The most curious part is the *sex* of the migrants. It is the females that migrate, leaving the males to brave the Winter's cold. Mr. Thos. Miller of Heron Lake, Minn., fairly states the case when he says, "The females (of *Cupido*) in this latitude, migrate south in the Fall and come back in the Spring, about one or two days after the first Ducks, and they keep coming in flocks of ten to thirty for about three days, all flying north. The Grouse that stay here all Winter are males." By this, of course, it is not meant that no female ever stays in Minnesota during the Winter, but that their numbers are very few compared with the males. At Iowa City, Ia., the first of the flocks passed over March 10th, and the bulk on the 22d; at Newton, Ia., the bulk is mentioned on March 23d. The "booming" of this species is marked from March 7th, at Caddo, Indian Territory, to March 24th, at Barton, Dak.

As supplemental to the Pinnated Grouse, we may mention that of the SHARP-TAILED GROUSE, (*Pedvécetes phasianellus columbianus*). Dr. Coues in his "New Key," gives the range of this species as follows: "The Pintail Chicken inhabits the western portions of Minnesota, a small part of Iowa, all of Dakota thence diagonally across Nebraska and Kansas to Colorado in the Laramie and upper Platte regions, thence westward in suitable country to the Sierra Nevada and Cascade Ranges." To this range several places can be added extending its range eastward. In Minnesota it is found in the northern and north-eastern portions, while in the middle of the State it ranges as far east as Elk River, and probably across the State, as they are found in adjoining portions of Wisconsin. I am indebted to Mr. C. F. Carr of Waupaca, Wis., for the boundaries of their range in that State. He writes: "They are quite abundant on Sisson's Prairie, Portage County, in the Fall of the year, but as soon as cold weather sets in, they keep in the edge of the woods. They are associated with *C. Cupido*. They range in the northwestern portion of the State from about the center of Waushara County, but are most abundant in Waushara, Waupaca, Portage, Shaweno, and Marathon Counties, but not many in the latter."

They also extend northward into Manitoba, being resident and common at Portage La Prairie, latitude 50°; though the form found in British America is considered to be the typical form, *P. phasianellus*.

Col. Goss says they are still resident in middle western Kansas, but becoming rare, while Dr.

Watson says that in the vicinity of Ellis, Kans., they disappeared in 1875 and since then *Cupido* has taken their place. Even in Illinois, according to Mr. Ridgway, a very few are still found on the prairies in the northern part of the State.

It will thus be seen that the range of the Sharp-tailed Grouse forms a half circle to the north of the range of the Pinnated, and following this bow that the two ranges overlap in Illinois, Wisconsin, Minnesota, Dakota, Nebraska and Kansas.

BLACK-HEADED SNOWBIRD, (*Junco hyemalis*). Mr. J. A. Balmer, sends the following notes from Danville, Ill., 40°: "Many large flocks wintered here, but the bulk left by the first of May. On June 1st, a male bird noticed; June 7th, male and female; and again on June 21st, I saw a male bird, always near the same spot. This led me to think the pair might be nesting here. I have searched pretty thoroughly for their nest, but without success."

INTERMEDIATE WHITE-CROWNED SPARROW, (*Zonotrichia gambeli intermedia*). In the "Auk" for January, 1884, p. 100, Col. Goss gives a short note of the addition of this species to the birds of Kansas, it having been taken by Prof. Lantz at Manhattan, Oct. 9th, 1883, and by the Colonel a few days later at Fort Wallace. During migration the following Spring, Prof. Lantz took it again at Manhattan, on May 7th, which was eleven days later than the migration of the common White-crown, which probably accounts for its being formerly overlooked. Nor is this the most eastern record, since a single specimen was reported from Iowa years ago, and in 1871 Dr. Hoy took one near Racine, Wis.

During the Fall migration of 1884, Prof. Lantz was again on the watch for this species and found so many that he writes under date of December 26th: "It is now fully established that this form is common here, being even more numerous than the eastern form." All observers in Texas, Kansas, Nebraska and Dakota, should be on the lookout for this form during migration, and it might be well for those in western Iowa and Minnesota to pay some attention to the subject. The distinguishing mark of this form as given in Coues' new Key is, exactly like the White-crown, but "lores gray or ashy, continuous with the white stripe over the eye, i. e., the black of the forehead does not descend to the eye."

TOWNSEND'S WARBLER, (*Dendroica townsendi*). This western Warbler has been added to the birds of the Mississippi Valley district by Mr. Wm. Lloyd, who found it at San Angelo as an abundant migrant and also as a Summer resident, "though rarely secured, as its habitat is the

thickest underbrush in a very restricted locality." Through the courtesy of Mr. Lloyd I had the pleasure of examining a specimen—a fine male—taken during the Fall migration.

TRAILL'S FLYCATCHER, (*Empidonax pusillus trilli*). No record of the breeding of this species south of Missouri, had come under my notice. It was therefore with considerable surprise that I read in one of Mr. Lloyd's reports from San Angelo, Tex., "Breeds in June, two clutches taken of four each." I wrote, asking if there was any mistake about it, and he answers, "The Traill's Flycatcher is correct. I shot three in June, 1882, and sent them to my friend, Mr. Everett Smith, who said they were typical *E. trilli*. He diagnosed the various allied species, * * * sending me at the same time eastern specimens. I compared one this July that was also typical."

LEWIS'S WOODPECKER, (*Melanerpes torquatus*). The same observer has also added this species to the birds of Texas. It had previously been brought into the Mississippi Valley by Dr. Watson, who took it at Ellis, Kans., as reported by Col. Goss in his "Birds of Kansas." Mr. Lloyd says of his specimens: "Two were here (at San Angelo,) before Christmas, and four arrived after our bad Christmas norther. I secured a male and a female; a friend shot another but lost it, two left during the snow of January 20th, and one still remains."

Hawk Notes.

BY J. W. PRESTON, BAXTER, IA.

THE MARSH HARRIER. This Hawk has been a favorite with me not more for his usefulness than for his trim build and graceful flight. Many a fine Spring morning have I seen the male fly to a great height, then close his wings and fall and rise in easy, long curves, almost to the earth, then ascend, turning over and over, uttering a loud chattering cry. This curious performance is frequently continued for a great distance.

During the Spring of 1872, while at a piece of work near a grassy marsh, I noticed a female Harrier flying over the marsh in search of food, returning at short intervals to a spot which proved to be her nest. This nest differed from the ordinary heap of grass; it being firmly built of a large number of sticks and twigs, lined with grass and feathers, and placed on top of a high tussock.

A large number of sets collected by me in previous seasons contained from four to six eggs each. One exceptional nest having eight eggs

ranging from fresh to well incubated. The nest of the usual form was on the ground, in a low Hazel thicket on a high ridge.

SWAINSON'S HAWK.—A pair of Swainson's Hawks having selected an old Crow's nest in a small Oak sapling near a field in which I was ploughing a few Springs since, I had good opportunity for observing some of their habits. For a number of days they were flying about over the fields and timber, gathering material for the nest; being partial to a stalk-field, from which they carried many pieces of husk. Occasionally one would fly close over my team, caring nothing for my presence, even *boldly* pouncing upon a field-mouse only a few rods away, retiring to a fence to devour its prey. In course of a week the female stayed on the nest, and supposing the eggs had been laid, I climbed the sapling and found but one egg, which I left several days, and on returning found two eggs. One was elongated, the other of the usual shape; both were white, with rich brown spots. Sets collected by me have mostly contained three eggs, much resembling those of the Red-tailed Hawk, but smaller. Nests were old ones, which had been occupied by other birds. One exception, was a handsome nest in a very tall Hickory, and had not the birds been identified, the nest would have passed as that of the Red-tail.

Although this Hawk is careless at times, and appears sluggish, yet he is capable of swift and graceful flight; often sailing to an immense height, from which he will descend in easy curves.

An interesting feature of their migration is the habit of gathering in vast flocks as they proceed.

The Migrations of Birds.

EXTRACTS FROM AN ARTICLE IN THE "EDINBURGH REVIEW" FOR JANUARY, 1885.

In any attempt to explain phenomena so remarkable as some of the periodic movements of birds, a knowledge of the facts relating to them is absolutely indispensable, and some progress has doubtless been made since the period, not very long ago, when naturalists gravely debated the pros and cons of the hibernation of swallows in pools and ponds, since that more ancient time when the augurs watched the flight of birds and found an omen of good or evil according as the Eagle might take its flight from left to right or the contrary. But the longer migrations of the feathered races, especially when they cross the sea, and not always by the nearest and easiest route, are still sufficiently puzzling. It will be

well therefore in the course of our remarks on migration, if we advance gradually, considering first the simple cases, which present no difficulty. It is obvious that some birds are always resident in this country, such as the Sparrow, which supplies its wants the whole year round in the neighborhood of our homesteads. Some of these residents are wanderers—in fact, every bird is a wanderer more or less when it shifts its quarters during the year in seeking food.

The experimental flights of birds for the sake of discovering nesting places, food, or some other object, must not be regarded as either vagrant or mysterious; for whatever name may attach to such excursions, they belong to a kind of migration which is constantly occurring. They may be compared, perhaps, to the rambles of gipsies, who set up their tents wherever they can find a vacant spot by the roadside, or perhaps they may be more accurately likened to the extension of a fir forest, which literally marches up the slopes of a Scotch hill and occupies new ground by the scattering of its seeds. By such accidents, by wandering and migration in the case of man and other animals, and by an analagous seizure of new sites in the case of vegetables, the world has been peopled and planted.

In his work on the "Distribution of Plants and Animals," Mr. Wallace remarks that migration in its simple form may be best studied in North America, where it takes place over a continuous land surface with changes of climate North and South. We have there every grade of migration, from that of species which merely shift the northern and southern limits of their range a few hundred miles to that of some other species which move over 1,000 miles of latitude and are birds of passage in all the intervening districts. Some have extended their range under conditions favorable to them and induced by human agency, such as the Rice Bird and the Mexican Swallow, and we may be sure that in all parts of the world the range of birds has always extended under favoring conditions of one kind or another. The cultivation of fresh tracts of land will bring such birds as follows the plough into new districts, and the presence of an advancing bird population will carry the individuals composing it into all parts where life can be sustained. As the birds increase in any district they naturally wander farther, for the same reason that man himself emigrates from an over-crowded country. There is of course a distinction between migration and distribution, but when migrating birds become more widely distributed from any cause the range of their migration must necessarily be extended. So far as the initial motive is con-

cerned all migrations are similar, though they differ widely in their extent and in the circumstances that attend them. . . . Naturalists have drawn distinctions between different kinds of migration, which they have classified as those of Spring, when our Summer migrants arrive, departing again after breeding, and those of Autumn, by birds that winter here and depart from our shores in the Spring. The birds of passage, as they are called, which pass through a country without remaining long, are bent on exactly the same business as the true migrants. They are simply passing to their quarters. A Fieldfare prefers England to the Arctic circle in Winter, and comes here accordingly, and if he rests on Heligoland, he is there a bird of passage. In Spring he returns perhaps. A bird of passage may breed in the north or south; he may pass the particular spot where he is observed as a bird of passage in Autumn or in Spring; his migration may be long or short; he is at the end of his two journeys a true migrant, like the Swallow, or like those sweet Warblers in our groves and hedges which disappear entirely at their season, while the partial migrants, Pied-wagtails, Woodcocks, Snipes and others, do not entirely leave us. The Song Thrush and Robin are among the birds which as species remain always with us, but the number of individuals of all these kinds is increased by migration in Spring and Autumn more extensively than casual observers might imagine. The Redbreasts though they do not flock at the end of Summer, pass constantly southwards, prompted by their migratory instincts, and do not stop at the Channel. Another movement of a migratory character on the part of the same familiar birds, is that which brings them to our homesteads on the approach of severe weather. This is not migration in the ordinary sense, and it offers no problem hard to solve, but the short journeys are undertaken with the same objects as the long ones, and they may serve as illustrations of the first promptings of the instinct of migration. The flight from wood and field offers no difficulty; it is guided evidently by sight and memory of former fittings; or perhaps some of the inexperienced birds may wander hither and thither for a while seeking the shelter and food they need, finding it haphazard or failing to do so and perishing in their search. The long flights of Cranes and other strong-winged birds have formed the subject of theories still wilder than the flights perhaps, and arising from the insufficiency of the facts relating to them. The argument should be inductive. The short fittings perhaps will be found to explain the longer, and thus the mystery may be found to rest on simple causes after all.

We have shown the frequency with which several supposed residents wander, and Professor Newton tells us in his able article in the new edition of the "Encyclopedia Britannica" that "there is scarcely a bird of either the palaearctic or nearctic region, whose habits are at all well known, of which much the same may not be said; and hence we are led to the conclusion that every bird of the northern hemisphere is, to a greater or less degree, migratory in some part or other of its range."

The character of the soil and site also influences bird life, and therefore migration. There are birds of the swamps and streams, of the mountains, the deserts and the grassy plains. Speaking generally the migrants that resort to our shores in Winter, come from the northern sub-region already indicated. Our Summer migrants, the Swallow, Cuckoo, Nightingale and others more or less familiar, come from the southern sub-region, from the Mediterranean basin, from the Nile as far as the first cataract, the Pyrenees, Alps, Balkans, Caucasus and other districts of what Mr. Dresser has designated the European bird region. It is interesting to observe at what a leisurely pace migrations proceed in some districts, how rapid it becomes under a pressing emergency, how thorough and complete the movement of the birds is in localities where the food supply absolutely fails, while in others it is only partial, a limited bird population always remaining. The migrants quit the burning plains of Central Africa on the same principal that they leave the inclement North. In each district the animal and vegetable food which abounds in one case in Winter, in the other in Summer, entirely fails them, and their banishment is complete. But the manner of leaving differs, since there is rarely any urgency in the exit from the warmer countries, where the period of migration frequently extends over several weeks. In Autumn, on the contrary, the climate of the north sometimes closes up all food resources suddenly, and at such times a continual stream of birds arrives on our shores, showing how great the pressure in the rear must be. . . . A curious example of the occasional adventures of migrants occurs in the case of American birds, especially the shore birds from North America, which sometimes pay us visits, that the naturalists appreciate, though the birds themselves had no intention of crossing the Atlantic. It is curious too that these birds usually appear on our eastern coasts, and not on the shores nearest their homes. . . .

Avoiding further analysis of an abstruse question, we must be content with conclusions which may thus be briefly summarized:

In districts where the supply of food never fails, the instinct of migration could never have

been developed. We may look for it in its lowest form in those home-keeping birds whose flittings in search of food are least extended; and in its highest state of development in such travellers as the Swallow or the Nightingale, the Wild Swan or the Stork.

But when all is said, science has done but little to explain the extraordinary faculties which impel and enable the bird creation to encircle the globe, to seek for food and warmth in unknown lands, to steer their course with unerring precision across the depths of air and tracts of ocean, and to return in season to their wonted nests.

Rose-breasted Grosbeak.

Zamelodia ludoviciana.

BY C. O. TRACY, TAFTSVILLE, VT.

This bird is a fairly common Summer resident of this locality. Within the memory of the writer it was very rare. Mr. Zadock Thompson did not include it in his list of Vermont birds in his "Thompson's Vermont," published in 1842. It seems probable, however, that it was known in the State before that time. (Will any one having knowledge of its early appearance in Vermont, kindly report the same to the O. and O. or the writer?) The sexes arrive together. The male is at once conspicuous, both by his beautiful plumage and melodious song. While essentially a forest bird—and one must see and hear him in his forest home to see his full beauty, and hear him in his happiest song—they often come into the orchard and shade trees about our homes. Along the lightly timbered river banks and roadsides they find their favorite breeding places, but these must be at no great distance from the more heavily timbered forest. The forked top of a sapling is usually selected for a nesting place. Sometimes, however, the horizontal branch of a large forest tree is chosen. The nest is a frail structure, made of fine dry twigs and a few grass or weed stalks. Sometimes only twigs are used, and these are nearly always Hemlock. It is seldom less than eight, or more than twenty feet from the ground. The full complement of eggs is usually four, sometimes but three. Dimensions vary from 1.x.75 to .90x.70 of an inch; color greenish blue, spotted with different shades of brown.

Most of their eggs are laid the first week in June. The earliest and latest dates that I have taken full fresh sets are June 2d and 23d. Both sexes incubate, the male performing his full share of this important duty. My records show that where I have made observations in thirty-four cases, the nests were occupied by males twenty-three times and females eleven. By the second week in September they have all departed for the south.

A Catalogue of the Birds of Kalamazoo County, Michigan.

BY DR. MORRIS GIBBS.—PART II.

24. [71.] *Anthus ludovicianus* (Gm.) Licht. American Titlark.—Transient. Arrive from the South in April, and are found in May. Reach us from the North in September and are occasionally seen as late as November. Usually seen in large flocks. Never observed in Summer.

25. [74.] *Mniotilta varia* (Linn.) Vieill. Black-and-white Creeper.—Arrives from April 22 to May 10. Principally transient, but a few remain during Summer. One nest found by Dennis Nolan contained three young and an addled egg. It was built by the side of a decayed log on the ground, and was composed in its body of grapevine bark and dried maple leaves, and was lined with roots, hair and fine grapevine bark strips. The nest was found during the last week in May, in a high beech and maple woods.

The song of this bird, if we may call the notes a song, is *Che-weepy, teepy, seepy, ka-weepy, cheepy*. The call notes are *Chat ter r r r r r r r r r*, or *Tset, set, sit t t t t t*, very rapidly uttered. Sometimes we hear a simple tweet, twee or pee e t uttered in a lower key than the usual call.

26. [79.] *Helminthophaga pinus* (Linn.) Baird. Blue-winged Yellow Warbler.—A rare species with us. Mr. Arthur Chambers secured a specimen May 5, 1879. The Blue-wing may summer with us, but the fact has not as yet been proven.

27. [81.] *Helminthophaga chrysoptera* (Linn.) Baird. Blue Golden-winged Warbler.—A common species, arriving from April 26 to May 11. Breeds abundantly, but the nests are rarely found. But few nests have been met with in this county. The nests are always, so far as my knowledge goes, placed on the ground, and at the edges of woods or in a new or partial clearing. The nests are bulky affairs and compare well with those of the Yellow-throat. The eggs, usually five in number, are small, white, and spotted with fine dots of reddish-brown, chiefly at the larger end.

This is one of our handsomest Warblers and is known to nearly all collectors. The females are rarely shot, owing to their retiring nature. The Golden-wing is rarely seen later than August 25. They may remain sometime later but it is difficult to find them in the undergrowth, as they so thoroughly conceal themselves in the rank grass and bushes. The species prefer low, damp woods and the edges of clearings. The song is *Zw e e e e e e e e e e e e e e e*, long drawn out. The notes often seem to come from a distance when the bird is quite near; again the singer may be at quite a

distance and the bird be searched for near at hand. The notes are very deceptive. There are other notes of the Golden-wing, a half song difficult to describe, and the usual call notes, low chirps common to so many of the Warblers.

28. [85.] *Helminthophaga ruficapilla* (Wils.) Baird. Nashville Warbler.—Arrives from May 3 to 10. Remains with us until the last of the month and occasionally later. It may remain through the Summer, but has never been taken to my knowledge at a time to lead me to think that it nested here.

The Nashville is an active and pleasing Warbler and well known to all the collectors. In a large Tamarack swamp near Sugar-loaf Lake, hundreds may be heard singing from the 10th to the 20th of May. The song is similar to the syllables *Ca twee ca twee ca twee twee twee twee tree*, or *ca weet ca weet ca weet twee twee twee*, uttered in a sprightly manner as the little fellow skips about among the branches.

In the Autumnal migration the birds reach us in the latter part of August and remain a month. At this time of the year the song is seldom if ever heard. I have only heard the call, a simple chirp.

29. [87.] *Helminthophaga peregrina* (Wils.) Baird. Tennessee Warbler.—This is the last member of this genus to arrive, and in fact one of our latest arrivals of all the migrants. My earliest recorded arrival is May 18, and my latest date recorded, as the first seen for the season, is May 23. The species passes rapidly by us and it is rare to meet with specimens for more than two days during Spring.

The species arrives so late that the foliage has reached that degree of density by the time of their appearance that few are seen. The Tennessee keeps in the tops of the tallest trees, principally the Elms and Maples, and it is difficult to secure specimens. They are more often heard than seen, and frequently a flock will pass through without a chance of securing a shot. Occasionally a bird will be seen to dart from the dense top of a tree, immediately enter the foliage of the next before a shot can be had. The song is a rather sharp chatter, but not at all like that of the Pine Warbler. The call notes are short chirps, similar to others of the genus.

30. [88.] *Parula americana* (Linn.) Bp. Blue Yellow-backed Warbler.—Arrives from April 22 to May 11. I have never taken a specimen in June in the county and do not think that the species remains to breed. It may prove to be a rare Summer resident, as it is not rare during Summer a hundred miles north. The song of the Yellow-back is very pleasing although simple. The division of the note is something like this,

with our imagination stretched to the comprehension of supposed sounds *Zuee zuee zuee dee dee dee*. The song is frequently uttered, both from the tops of the tallest trees and the low bushes, the bird seemingly having no preference as to either elevated or a nearer terrestrial mode of travel. In its late Summer and Fall migration the species is not so tuneful, and the little fellows can only be detected by their faint chirping calls, or by watching them as they fit silently from tree to tree.

31. [90.] *Perisognatha tigrina* (Gmel.) Baird. Cape May Warbler.—Generally a rare species but quite abundant for a day during a season. Arrives in early May and hastens by us as rapidly as any member of the family. Returns to us in September—I have taken it as early as the 6th—and remains some time.

32. [93.] *Dendroica aestiva* (Gmel.) Baird. Summer Yellow Bird; Yellow Warbler.—One of our most abundant species. Arrives from April 19 to May 11. Breeds abundantly, generally selecting low sections or banks of streams, but occasionally found breeding in gardens where the nest is sometimes observed in the currant bush. Nests are frequently found in Plum and Apple trees. A beautiful and vivacious species, well known and liked by all. I have not observed it later than September 20. It becomes rare, or at least is difficult to find, after the Summer months.

33. [94.] *Dendroica cerulea* (Linn.) Baird. Black-throated Blue Warbler.—A species though very abundant to the north of us, quite scarce as a rule in this county. The earliest arrival is April 25, while one season the first seen was on May 13. The species does not remain during Summer. In late August we see them again on their southern journey, at which time they remain with us for quite a fortnight. We may calculate on seeing the Black-throat about every Spring, if a good deal of collecting is indulged in, but to those who only take an occasional day in the woods, he is a rarity.

34. [95.] *Dendroica coronata* (Linn.) Gray. Yellow-rumped Warbler.—Arrives from April 16 to 28. Remains with us until late May, when they move north. In their Autumnal migrations they usually reach us in early September and are quite numerous by Sept. 20. Have seen them by August 25. They appear plentiful until October 10. A few remain until November 1 and even later. One of our first Warblers to appear and the last to leave us.

35. [97.] *Dendroica maculosa* (Gmel.) Baird. Black-and-yellow Warbler.—Arrives from May 4 to 14. A regular transient with us. Never really plentiful. Linger with us often until late in May. Again seen in August and September on their journey south. A beautiful species and never known to sing with us.

36. [98.] *Dendroica cerulea* (Wils.) Baird. Cerulean or Blue Warbler.—Have met with this species but once. Shot a beautiful singing male May 11, 1884, while hunting with Mr. F. H. Chapin in low woods of Elm, Basswood and Ash near the river. Only two specimens have been taken. It may be considered decidedly rare at this latitude.

37. [99.] *Dendroica pennsylvanica* (Linn.) Baird. Chestnut-sided Warbler.—A common species generally, that is during a series of years, but often quite rare for a year or so, and again exceedingly common. In 1875 a great many nests were found, the first eggs being taken here in 1874. Since 1878 very few nests have been taken. The species arrives from April 25 to May 6. I cannot say how late it remains with us but have found it to be a rare bird in the Fall.

38. [100.] *Dendroica castanea* (Wils.) Baird. Bay-breasted Warbler. I cannot call this a really plentiful species in Spring, but have often found it rather common for an afternoon's walk. Arrives from May 10 to 20 and leaves us generally in a very few days. I have averaged seeing this bird about half the year. Frequently found in early September. Remains with us generally in considerable numbers for a month. This bird has a beautiful song, which is however rarely heard, and but little known to collectors.

39. [101.] *Dendroica striata* (Forst.) Baird. Black-poll Warbler.—This is one of a very few of the Michigan Warblers which I have never met with. It is never common in the county. Mr. Chapin has taken a number of specimens and reports it as a late arrival. It is usually seen from May 22 to 31. In the southern migration it is seen with us in late August and early September.

40. [102.] *Dendroica blackburniae* (Gm.) Baird. Blackburnian Warbler.—Arrives from April 24 to May 11. The large majority pass north, but a few remain to breed in the county. Mr. Benjamin F. Syke has had the good fortune to secure two nests with eggs of this species. Both nests were placed on limbs well up in Tamarack trees. One was all of forty feet from the ground. The Blackburnian is again common in September and all do not leave us until early October.

41. [103.] *Dendroica dominica albiflora* Baird. White-browed Yellow-throated Warbler.—A rare, early migrant. The species has never appeared common here. It is as a rule an early arrival. My first specimen was secured May 10, 1877, but they usually appear earlier. One was brought me Sept. 21, 1878, which was captured in a store in the city. Once observed a pair of birds building a nest in a tall Sycamore tree on the bank of the river.

THE ORNITHOLOGIST

—AND—

OÖLOGIST.

A MONTHLY MAGAZINE OF

NATURAL HISTORY,

ESPECIALLY DEVOTED TO THE STUDY OF

BIRDS.

THEIR NESTS AND EGGS.

DESIGNED AS A MEANS FOR THE INTERCHANGE OF NOTES
AND OBSERVATIONS ON BIRD LIFE.

FRANK B. WEBSTER, Publisher,

PAWTUCKET, R. I.

Editor's Notes.

What causes the Migration of Birds? This question is answered by a writer in the Edinburgh Review (extracts from whose article we reprint) and answered very positively—too positively we think—as wholly a matter of food. We venture to think this solution by no means explains the phenomena seen annually all over the world. No doubt it is a cause of the periodical movements of the Birds, but scarcely the *only*, perhaps not the principal, one. Impelled by hunger, many of our New England Birds flock into the towns and villages in severe weather; a season which has been unfavorable for the ripening of certain berries will cause our Winter birds to seek other localities; the extension of population westward takes certain birds to localities they had never previously been accustomed to visit—and on the other hand, causes the wilder species to seek more retired quarters. But these accidents of the seasons or of civilization are not "Migration." If it were only a question of food would not all the birds flock to genial climates, where insects and vegetable food are abundant all the year, and stay there?

Why should the Hummingbirds leave the flowers of Florida and Mexico, to seek the

comparatively rare ones of New England? Would not each species soon find his Winter resort also his best Summer home? Perhaps we are not yet sufficiently acquainted with the *facts* of migration to venture upon explaining them, but we know enough to say the Reviewer's opinion falls very far short of explaining points already beyond doubt.

This month again, we insert another letter upon the Destruction of Birds for Millinery Purposes. We have endeavored to give both sides an opportunity of maintaining their positions, and we regret the somewhat personal tone which has pervaded the discussion. We allude to the matter here because we think it advisable to place some limit upon our correspondents. We are promised facts, but do not seem to get further than "going for" the other man—which appears to be the preliminary. We hope both sides are now ready to return to first principles. In any further letters we may insert, we shall endeavor to keep them to the points at issue, rather than to the records of the other side. And the points at issue are surely of sufficient importance. If a senseless fashion is causing widespread and probably permanent injury to the more attractive part of our Bird Life, it is well we should know it and use every means to diminish or remove the evil. On the other hand if the birds killed bear only a small proportion to the total, we may wisely conclude that there is no reason for interference or cause for alarm.

Mr. Walter Hoxie writes us that he shot a specimen of Red-wing Blackbird of variety *gubernator*, in a flock of the ordinary type. That this Pacific slope variety should be found in South Carolina is certainly very wonderful, more especially as the Red-wings winter in the temperate zone, and a frequent cause of straggling—wintering together in the narrow American Tropics where east and west almost unite—is removed in their case.

Florida Bird Life.

BY E. M. HASBROUCK, PALATKA, FLA. PART III.

Jan. 31. Taking my gun and note book I started for the swamps to see what was going on among the birds, and to try and glean some new facts concerning them. The first bird that I saw was the Yellow-bellied Woodpecker, (*Sphyrapicus varius*), clinging to the side of a large Water Oak, and thundering away for dear life. This was the first bird of this species that I had seen in Florida, and I felt at home immediately on meeting this old friend.

Occasionally he would pause to utter a whining note, best represented by the syllables "Che-cheo-che-e-e-cheu." I soon found that my friend was not alone, for I heard a number in different parts of the swamp, and on hunting them up, found them all at work gleaning insects from the trunks of the trees. Presently a large flock of Bluebirds flew overhead, and on watching them I found that they were flying about in wide circles, and constantly calling to each other with their peculiar note so familiar to all. Suddenly they paused, shot towards the earth and alighted in the top of a tall tree, there to renew their chattering. They soon as suddenly dashed away again. These were followed by a flock of about three hundred Robbins, at a great height, which were flying back and forth, and chirping loudly, as if undecided in which direction to fly. These were soon joined by a larger flock, and after a short flight they all suddenly pitched toward the earth with a rushing noise that was plainly heard at a distance of a quarter of a mile, and alighted in the trees. In the meantime some twenty or thirty Purple Grackles, (*Quiscalus purpureus*), came skipping from tree to tree, and these were followed by a large number of the American Goldfinch, (*Astragalinus tristis*.) Seeing these birds in flocks, all within twenty minutes, and after watching their manœuvres, I came to the conclusion that the tide had turned, and that the great wave of migration was slowly advancing towards the north.

While seated on a log I became lost in admiring the beautiful singing of a Mocking Bird, (*Mimus polyglottus*), in the bushes near by. They are just commencing to sing after two months of comparative silence. Soon the harsh scream of the Blue Jay, (*Cyanocitta cristata*), reaches my ears from the top of a tall Pine tree. Looking up I perceived this saucy rascal, busily engaged in pecking at the pine cones in true Woodpecker style. All at once the familiar note of a Pileated Woodpecker, (*Hylotomus pileatus*), reached my

ears, and thinking that I might gain something by following him, I treaded my way carefully from tree to tree until finally I saw him on the top branch of a dead Cypress, calling and acting as though he expected an answer from some quarter. Soon he was joined by another, and after a moment's conversing, one flew away, while the other, after a moment's pause, flew a short distance and alighted on a Cypress tree, a couple of hundred yards off, and disappeared on the other side. Something induced me to follow, and it was well that I did so. On reaching the tree and searching carefully, I at first failed to find the object of my pursuit, but finally just as I was about to give it up, my eyes rested on a brand new hole, almost entirely concealed by an immense bunch of Spanish moss. Waiting patiently for some time, I was rewarded by at length seeing the long looked for bird fly out of it, and alight in a neighboring tree. I leave it to the readers of the "O. and O." if my patience and perseverance were not amply repaid. I did not climb to it, as the actions of the birds did not promise my finding a complete set of eggs, but I intend doing so two weeks from that day, and if successful, will let you know the results in my next. As it was, I contented myself with thinking what a splendid haul I would make at no distant day.

Feb. 7. During a short walk this morning I noticed for the first time the Yellow-rump Warbler, (*Dendroica coronata*). They were quite numerous and very busy catching insects. I heard only one note, a single "Chip" repeated at intervals. This morning a live female Sparrow Hawk, (*Tinnunculus sparverius*), was brought to me by a young man who said that he had caught it while attempting to get at a Mocking Bird that was in a cage hanging by his door. On putting it into a cage it at once turned over on its back and feigned death. One not acquainted with the circumstances of the case would readily have supposed the bird to be dead. There he lay, limp and motionless; all the poking with a stick had no effect. Finally, after my keeping quiet a few moments, I observed one eye cautiously opened, and then closed again as he saw that I was watching him. I then retired behind some boxes and watched to see what he would do. Soon he again cautiously opened his eyes, and not seeing me, began to beat the bars of the cage in a wild effort to free himself. On my approaching he threw himself into the position of a Night Hawk when feigning lameness. I think this answers the inquiry of a gentleman, made in the columns of your paper, as to whether birds "play possum." But to go back. Emerging from the swamp, I

found myself on the edge of a large Orange grove, and in passing through it came upon a flock of about ten Ground Doves, (*Chamaepelia passerina*). They were quite tame and allowed me to come within a few yards of them before taking wing. I notice that they are quite common in this vicinity, and may be found in any Orange grove.

The Mourning Dove is here in large numbers. They stay in flocks of from ten to a hundred and fifty, frequenting the skirts of the woods, and descending from time to time into the fields and Orange groves to feed. I have never heard them utter a single note since I have been here, and yet I have seen them under many circumstances. They are very shy and difficult of approach, and when feeding on the ground usually have a sentry stationed in the top of some dead tree near by. At dusk they all betake themselves to some certain spot, and, at a certain time, to drink. I never knew them to vary more than a few minutes from 5.30 p. m. If the coast appears clear they fly straight to the spot until directly over it, at a height of about five feet, pause with loud whistling and rapid beatings of the wings and alight. After alighting they remain motionless for as long as three minutes, and then commence to drink and dress their plumage. Should they, however, perceive cause for alarm, they wheel over the spot several times, and should they deem it unsafe, fly away to some other place. Their flight is accompanied by a whistling noise that may be plainly heard, if everything is quiet, at a distance of two hundred yards.

Birds of the Upper Passaic Valley, New Jersey.

BY H. F. BARRELL, NEW PROVIDENCE, N. J.

(Continued from page 23.)

- 72 Field Sparrow, (*Spizella pusilla*.) Summer resident; abundant. Breeds. March 25—Oct. 24.
- 73 Black Snowbird, (*Junco hyemalis*.) Winter visitant; abundant. Oct. 14.
- 74 Song Sparrow, (*Melospiza fasciata*.) permanent resident; abundant. Breeds.
- 75 Swamp Sparrow, (*Melospiza palustris*.) Summer resident; common. Breeds. April 14.
- 76 Fox-colored Sparrow, (*Passerella iliaca*.) Winter visitant; common.
- 77 Chewink, (*Pipilo erythrophthalmus*.) Summer resident; common. Breeds. April 30—Oct. 1.
- 78 Rose-breasted Grosbeak, (*Zamelodia ludoviciana*.) Summer resident; tolerably common. Breeds. May 10—Sept. 2.
- 79 Indigo Bunting, (*Passerina cyanea*.) Summer

- resident; tolerably common. Breeds. May 12.
- 80 Bobolink, (*Dolichonyx oryzivorus*.) Summer resident; tolerably common. Breeds. May 6.
- 81 Cowbird, (*Molothrus ater*.) Summer resident; common. Breeds. April 9—Oct. 14.
- 82 Red-and-buff-shouldered Blackbird, (*Agelaius phoeniceus*.) Summer resident; common. Breeds. February 28—August 13.
- 83 Meadow Lark, (*Sturnella magna*.) permanent resident; tolerably common. Breeds.
- 84 Orchard Oriole, (*Icterus spurius*.) Summer resident; tolerably common. Breeds. May 6—August 13.
- 85 Baltimore Oriole, (*Icterus galbula*.) Summer resident; tolerably common. Breeds. May 2—August 13.
- 86 Rusty Blackbird, (*Scolecophagus ferrugineus*.) transient visitant; tolerably common. Seen more in Autumn in flocks, migrating. Oct. 18.
- 87 Purple Grackle, (*Quiscalus purpureus*.) Summer resident; common. Breeds. Feb. 19—Oct. 11.
- 88 Common Crow, (*Corvus frugivorus*.) permanent resident; common. Breeds.
- 89 Blue Jay, (*Cyanocitta cristata*.) permanent resident; common. Breeds.
- 90 Kingbird, (*Tyrannus carolinensis*.) Summer resident; common. Breeds. April 14—Sept. 15.
- 91 Great Crested Flycatcher, (*Myiarchus crinitus*.) Summer resident; tolerably common. Breeds. May 4—Sept. 15.
- 92 Phoebe Bird, (*Sayornis fuscus*.) Summer resident; common. Breeds. March 22—Oct. 27.
- 93 Wood Pewee, (*Contopus virens*.) Summer resident; tolerably common. Breeds. May 10—Sept. 21.
- 94 Yellow-bellied Flycatcher, (*Empidonax flaviventris*.) Summer resident; rather common.
- 95 Least Flycatcher, (*Empidonax minimus*.) Summer resident; common. Breeds. May 10—Sept. 24.
- 96 Ruby-throated Hummingbird, (*Trochilus colubris*.) Summer resident; tolerably common. Breeds. May 9—Sept. 21.
- 97 Chimney Swift, (*Chaturus pelagicus*.) Summer resident; common. Breeds. May 3—Sept. 14.
- 98 Whip-poor-will, (*Caprimulgus vociferus*.) Summer resident; tolerably common. Breeds. May 3—July 31.
- 99 Nighthawk, (*Chordeiles popetue*.) Summer resident, but very seldom seen. Very rare. Aug. 21—Oct. 1.

- 100 Hairy Woodpecker, (*Picus villosus*.) permanent resident, but very rare.
- 101 Downy Woodpecker, (*Picus pubescens*.) permanent resident; common. Breeds.
- 102 Yellow-bellied Woodpecker, (*Sphyrapicus varius*.) resident; tolerably common. Mostly seen in Autumn.
- 103 Red-headed Woodpecker, (*Melanerpes erythrocephalus*.) Summer resident; tolerably common. Breeds.
- 104 Yellow-shafted Flicker, (*Colaptes auratus*.) Summer resident; common. Breeds. March 27—Sept. 28.
- 105 Belted Kingfisher, (*Ceryle alcyon*.) Summer resident; tolerably common. Breeds. April 4—Oct. 16.
- 106 Yellow-billed Cuckoo, (*Coccyzus americanus*.) Summer resident; tolerably common. Breeds. May 22—Sept. 29.
- 107 Black-billed Cuckoo, (*Coccyzus erythrophthalmus*.) Summer resident; tolerably common some seasons. Breeds.
- 108 American Long-eared Owl, (*Asio americanus*.) permanent resident; tolerably common.
- 109 Short-eared Owl, (*Asio accipitrinus*.) resident; rare.
- 110 Barred Owl, (*Strix nebulosa*.) resident; rare.
- 111 Saw-whet Owl, (*Nyctale acadica*.) resident; rare. Breeds.
- 112 Little Screech Owl, (*Scops asio*.) permanent resident; common. Breeds.
- 113 Great Horned Owl, (*Bubo virginianus*.) resident; rare.
- 114 Pigeon Hawk, (*Esalon columbarius*.) resident; rare.
- 115 Sparrow Hawk, (*Tinnunculus sparverius*.) resident; tolerably common.
- 116 Marsh Hawk, (*Circus hudsonius*.) resident; tolerably common.
- 117 Cooper's Hawk, (*Accipiter cooperi*.) resident; tolerably common.
- 118 Sharp-shinned Hawk, (*Accipiter fuscus*.) resident; tolerably common.
- 119 Red-tailed Hawk, (*Buteo borealis*.) resident; tolerably common.
- 120 Red-shouldered Hawk, (*Buteo lineatus*.) resident; common. Breeds.
- 121 Mourning Dove, (*Zenaidura carolinensis*.) Summer resident; common. Breeds. March 24—Sept. 28.
- 122 Ruffed Grouse, (*Bonasa umbellus*.) permanent resident; tolerably common. Some seasons rare.
- 123 Bob White, (*Ortyx virginiana*.) resident; tolerably common. Breeds.
- 124 Great Blue Heron, (*Ardea herodias*.) Summer resident; rare. Breeds. April 19.
- 125 Green Heron, (*Butorides virescens*.) Summer resident; tolerably common. Breeds. May 5—Sept. 28.
- 126 Black-crowned Night Heron, (*Nycticorax nycticorax*.) Summer resident; tolerably common. Breeds. March 23—Sept. 13.
- 127 American Bittern, (*Botaurus lentiginosus*.) Summer resident; rare. May 5.
- 128 Killdeer, (*Oxyechus vociferus*.) very rare.
- 129 American Woodcock, (*Philohela minor*.) Summer resident; common. Breeds. March 10.
- 130 English Snipe, (*Gallinago media*.) transient visitant; tolerably common.
- 131 Red-breasted Snipe, (*Macrorhamphus griseus*.) transient visitant; tolerably common on the wet meadows during migration.
- 132 Least Sandpiper, (*Actodromas minutilla*.) transient visitant; tolerably common.
- 133 Semipalmated Sandpiper, (*Ereunetes pusillus*.) transient visitant; tolerably common.
- 134 Yellow-legs, (*Totanus flavipes*.) transient visitant; tolerably common during the Autumn.
- 135 Solitary Sandpiper, (*Rhyacophilus solitarius*.) Summer resident; common. May 14.
- 136 Spotted Sandpiper, (*Tringoides macularius*.) Summer resident; common. Breeds. May 3—Sept. 15.
- 137 Canada Goose, (*Bernicla canadensis*.) Occasionally settles down on the Passaic during Spring migration.
- 138 Mallard, (*Anas boschas*.) transient visitant; tolerably common on wet meadows some two miles away.
- 139 Black Mallard, (*Anas obscura*.) transient visitant; tolerably common on wet meadows.
- 140 Gadwell, (*Chauelasmus streperus*.) transient visitant; tolerably common.
- 141 Pintail, (*Dafila acuta*.) transient visitant; tolerably common on the low lands of the Passaic.
- 142 Widgeon, (*Mareca penelope*.) transient visitant; tolerably common during migration.
- 143 Shoveller, (*Spatula clypeata*.) transient visitant; tolerably common.
- 144 Blue-winged Teal, (*Querquedula discors*.) transient visitant; tolerably common.
- 145 Green-winged Teal, (*Nettion carolinensis*.) transient visitant; tolerably common.
- 146 Wood Duck, (*Aix sponsa*.) Summer resident; tolerably common. Breeds.
- 147 American Sheldrake, (*Mergus merganser americanus*.) transient visitant; rather common.
- 148 Hooded Sheldrake, (*Lophodytes cucullatus*.) transient visitant; tolerably common.
- 149 Thick-billed Grebe, (*Podilymbus podiceps*.) transient visitant; tolerably common.

Notes on Nests of the Indigo Bird and Towhee Bunting.

BY W. E. H., FAIRVIEW, W. VA., (PANHANDLE).

On the 18th of August, 1883, the writer found in a mass of Blackberry briars on the border of a wood, within a radius of nine feet, two nests, one that of the Towhee Bunting and the other of the Indigo Bird, each not less than three feet from the ground, and containing 3 and 4 fresh eggs respectively. In connection with this circumstance the writer deems three things as noteworthy. First, the close proximity of said nests. Rarely, if ever, has he found nests of different species within so short a distance of each other and occupied simultaneously, although it may occur oftener than his own observations would indicate. It would, perhaps, be a matter of interest were correspondents of the "O. and O." to note instances of this.

A second feature of interest was the lateness of the season of the occurrence of said nests. It is generally supposed the Indigo Bird, like the Scarlet Tanager, is quite sensitive to the frosts of our northern climates, and observations in this latitude pretty generally agree, that, as it is among the latest of Spring arrivals, it is among the first to take its departure in the Fall. The finding therefore, of a nest of this bird, with freshly laid eggs, after the middle of August, the writer believes to be, at least, quite extraordinary.

A third interesting fact in connection with the above was the elevation of the Towhee's nest from the ground. Several years ago, writers noted exceptions to the ground building habit of this bird, and quite recently a number of correspondents of the "O and O" have reported instances, as coming under their own observation, of its nesting in a bush or low sappling, some feet from the ground. And yet there are reputable writers who still persist in saying "the Towhee Bunting *always* builds its nest on the ground," e. g., Dr. Abbott in his recently published "Rambles of a Naturalist about Home," page 141. One "O. and O." correspondent called attention to the interesting fact that every reported instance of this bird's departure from its usual practice of nesting on the ground, as he believed, uniformly occurred during the latter half of the breeding season, which agrees with the case in question. His theory, however, in explanation, viz.: the Summer foliage contributed to form a bed for the nest, would hardly hold good in this case, my notes minutely describing the nest as "attached to a bunch of four or five upright *dead* Blackberry stalks, partially shaded by taller Elderberry bushes."

Notes on the Birds of the Sea Islands.

BY WALTER HOXIE, FROGMORE, SO. CAR.—PART III.

The Wood Thrush, (1,) an occasional migrant.
The Hermit Thrush, (5*b*), a common migrant and occasional Winter resident.

Wilson's Thrush, (2,) occasionally an abundant migrant, usually I think when the next is rare.

The Olive-backed Thrush, (4*a*), generally an abundant migrant and Winter resident, but occasionally seems to be supplanted by the Wilson's.

The Robin, (7,) abundant Winter resident.

The Mockingbird, (11,) abundant resident.

The Catbird, (12,) very rare until the present year. This Spring not rare, and this Fall very abundant. A few seem inclined to pass the Winter here.

The Bluebird, (22,) common Winter resident. A few breed. The eggs are laid late and are very small.

The Ruby-crowned Wren, (30,) common in Winter.

The Golden-crested Wren, (33,) rare in Winter.

The Brown Thrasher, (13,) common resident, and abundant during the migrations.

The Mocking Wren, (60,) common Summer resident.

The Long-billed Marsh Wren, (67,) abundant.

The Short-billed Marsh Wren, (68,) very rare.

The House Wren, (63,) very abundant in Winter. A few Summer residents.

The Winter Wren, (65,) Taken once in 1869.

The Brown Creeper, (55,) occasional in Winter.

The Brown-headed Nuthatch, (53,) rare resident.

The Blue-gray Gnatcatcher, (27,) rare migrant, and occasional Summer resident.

The Tufted Tit, (36,) rare formerly, but now becoming an abundant resident.

The Carolina Tit, (42,) common resident.

The Titlark, (71,) abundant all Winter.

The Black and White Creeper, (74,) common migrant. Early in its arrivals in both Spring and Fall.

The Blue Yellow-backed Warbler, (88,) an abundant migrant and common Summer resident.

The Prothonotary Warbler, (75,) very rare migrant.

The Maryland Yellow-throat, (122,) very common migrant, lingering late in the Fall.

The Mourning Warbler, (120,) probably accidental. One specimen taken in Spring.

The Connecticut Warbler, (118,) occasional, both in Spring and Fall.

The Kentucky Warbler, (119,) taken twice in Fall.

The Yellow-breasted Chat, (123,) very common Summer resident.

The Worm-eating Warbler, (77,) very rare.

Swainson's Warbler, (76,) rather rare Summer resident. I think this is one of its most abundant localities.

The Blue-winged Yellow Warbler, (79,) and Golden-winged, (81,) each taken once in Spring.

Bachman's Warbler, (78,) quite rare Summer resident.

Nashville Warbler, (85,) occasionally an abundant migrant.

The Orange-crowned Warbler, (86,) taken twice in the Fall.

The Tennessee Warbler, (87,) not a rare migrant.

The Golden-crowned Thrush, (115,) common migrant.

The Water Thrush, (116,) rare migrant.

The Black-throated Green Warbler, (107,) an occasional late Spring migrant. Not yet detected in the Fall.

The Black-throated Blue Warbler, (94,) the earliest Fall Warbler. But once detected in the Spring. "Discouragingly fat."

The Blackburnian Warbler, (101,) very rare migrant.

The Bay-breasted Warbler, (100,) occasional migrant.

The Pine Creeping Warbler, (111,) common resident and very abundant migrant.

The Chestnut-sided Warbler, (99,) not a rare migrant in Spring.

The Blue Warbler, (98,) very rare in Spring.

The Black-poll Warbler, (101,) taken once.

The Yellow Warbler, (93,) abundant migrant. A few stay and breed.

The Black and Yellow Warbler, (97,) taken once.

The Cape May Warbler, (96,) abundant Spring migrant in 1869. Not detected since then.

The Yellow Red-poll, (113,) rather common Winter resident.

The Yellow-throated Warbler, (103,) not an uncommon Summer resident.

The Prairie Warbler, (114,) not uncommon in Spring. Very rare in Fall.

The Hooded Warbler, (124,) taken once in Fall.

The Yellow-rumped Warbler, (95,) common Winter resident.

The Small-headed Flycatcher, (126,) Green Black-capped Flycatcher, (125,) and Canada Flycatcher, (127,) have each been taken once.

The Redstart, (128,) abundant Fall migrant.

The Scarlet Tanager, (161,) occasional Spring migrant.

The Summer Redbird, (164,) abundant Summer resident.

The Barn Swallow, (154,) a common migrant, especially so in a wet Spring.

The Cliff Swallow, (153,) very rare migrant.

The White-bellied Swallow, (155,) migrant.

Our most abundant Swallow:

The Rough-winged Swallow, (158,) common Summer resident.

The Purple Martin, (152,) common migrant and Summer resident.

The Cedar Bird, (151,) occasionally a very abundant Winter visitor.

The Loggerhead Shrike, (149,) abundant resident.

The Red-eyed Vireo, (135,) migrant.

The Warbling Vireo, (139,) rare migrant.

The White-eyed Vireo, (143,) abundant migrant and common resident.

The Blue-headed Vireo, (141,) very rare migrant and still rarer resident.

The Yellow-throated Vireo, (140,) migrant.

The Purple Finch, (168,) is rare here. I have never taken it, and only seen it once or twice in Spring.

The Yellowbird, (181,) is only an occasional Winter visitor. At least, I have never seen the male here in breeding plumage.

The Savannah Sparrow, (193a,) our commonest Sparrow in Winter. Arrives the first week in October and becomes plentiful by the last of the month. Have never taken it after the middle of May.

The Grass Finch, (197,) Winter visitor from the last of October till March, or later.

The Yellow-winged Sparrow, (198,) is never very common, but often taken in company with the Savannah Sparrow in Mid-winter, when it feeds about the yards and buildings.

Henslow's Bunting, (199,) seems to be quite erratic in its movements here. I never detected it until this Fall, when I found it in the vicinity of the rice fields, in the middle of October. Now (the end of December,) I cannot find any.

The Sharp-tailed Finch, (201,) is common along the creeks and edges of the marsh till late in November, and may breed here. But I have seldom seen it in the Spring.

The Seaside Finch, (202,) common in March and October about the outer beaches. I do not think it ever breeds here, but both this and the preceding are so shy that some might be about all Summer without being detected, ("by the old chap with the specs," says the irreverent lad at my elbow).

The White-throated Sparrow, (209,) comes to us

in January and for some time frequents the marshes, and does not retire to the woods and hedges much before March, by the end of which month it is in full plumage. It leaves early in April.

The Field Sparrow, (214,) and the Chipping Sparrow, (211,) are met with only at intervals in dry Oak woods. Both are much more common, I am informed, at some distance inland.

The Song Sparrow, (231,) common from the middle of November until March. Sings a little in warm misty weather, but without spirit ("as if he had forgotten the tune," says that elbow cousin of mine).

The Swamp Sparrow, (233,) and Lincoln's Finch, (234,) are only occasional in the Winter. They both seem while with us to seek the warmest and driest situations

Bachman's Finch, (226,) resident but quite rare. I have taken it in every month. Usually in low bushes near a swamp. Nests in thick scrubby Oaks.

The Fox Sparrow, (235,) is rare except in the coldest part of the Winter, and then only when the weather is very wet.

The Black-throated Bunting, (254,) occasional at all seasons.

The Rose-breasted Grosbeak, (244,) seen once in Spring.

The Blue Grosbeak, (246,) breeds very sparsely in the Pine barrens. One of the rarest of our resident birds.

The Nonpariel, (251,) is very common all Summer. Arrives about the last of April, though a few males are often seen much earlier. Indeed, I took a full set of eggs April 28th, 1870, and another set the next day.

The Indigo Finch, (248,) I have seen but once, in April, near the sea beach.

The Cardinal, (242,) common resident. Raises several broods during the season.

Chewink, (237,) a common resident, (the White-eyed variety, at least). The Red-eyed variety is only occasional in Winter and Spring.

The Bobolink, (257,) is occasionally taken in Spring in full breeding plumage. In the Fall they pillage the rice fields in immense flocks, and are locally known as "Barley birds."

The Cow Bunting, (258,) occasional in Winter and Spring.

The Redwing, (361,) very common in the migrations. A few Winter—mostly young males. Many breed; but much later than in higher latitudes. Called Rice-bird by the natives.

The Meadow Lark, (263,) plentiful all Winter. A few breed in very dark plumage—occasionally with a hooked upper mandible.

The Orchard Oriole, (270,) is very common in the Spring migration, but I have never detected it in the Fall. A few may breed, though I have never taken it later than June 21st, 1869.

The Baltimore Oriole, (271,) seen once in March.

The Rusty Grackle, (274,) occasionally visits us in flocks during the Winter.

The Bob-tailed Grackle, (277,) common resident, but partially retiring in cold weather. Well known as Jack Daw. Breeds in communities in April and May. Two broods are sometimes raised.

The Common Crow, (282,) and Fish Crow, (283,) are both common residents.

The Blue Jay, (289,) is not at all rare in the country, and very common in Port Royal and Beaufort, frequenting the shade trees. I have known the Florida Jay, (291,) to be taken once or twice on Lady's Island.

Brief Notes.

WHAT GUN TO USE FOR COLLECTING.—The collecting season being almost at hand, this is a good time to say a word about collecting weapons. There seems to be a good deal of indecision and question among the active members of the fraternity as to the best method of collecting small birds. After having seen and used several methods, including, I believe, all the best ones, I have settled contentedly to the use of an eight and a half inch insertion barrel, 32-calibre, full choke. This can be comfortably carried in the coat pocket, makes but little noise, kills Warblers up to twenty yards and yet can be used at eight or ten yards very well. There is a Boston firm that makes such a barrel, but I am using one which a local gunsmith bored from a piece of 22 calibre rifle barrel, and for practical work it can hardly be excelled. A 22 barrel is too small and will not kill far enough, while a 38 or 44 is unnecessarily large and cannot be used at such close quarters as the smaller bore. The cost of the locally made barrel is \$6; I think the Boston firm charge \$8, while a Shilton rifle barrel bored smooth is about \$10 or \$12.

Gun cleaning is always a bore to the busy ornithologist. In one pocket of a shooting coat one can carry a strong cord with a bullet on one end and at intervals of about thirty-six inches along the cord pieces of tow large enough to fill the barrels pretty tightly. Using about three to six such tow wads with the third or fourth well greased with vaseline, a single draw through each barrel as one drives home from a shoot, will generally clean the barrels perfectly and is a great

saving of time and temper. It is also well to rub once with an oiled rag on arriving home.—*W. E. Saunders, London, Ont.*

CASSIN'S VIREO, (*Laniroo solitarius cassini*). On June 2d, while collecting in a small grove of Scrub Oaks, the report of my gun started a bird of this species from a tree near by, and upon shooting it, I was very much pleased to find it to be a female which had evidently just left the nest—but to find that nest was the difficulty, and it was some time before I at last came upon it, so well hidden by a mass of leaves that its discovery was almost an accident. It was in a small Oak, about seven feet from the ground, about four feet from the body of the tree and hanging from the end of the limb. It was a beautiful pensile affair, composed of light colored strips of bark and dry grasses, with several scraps of hornets' nests fastened to the outside, lined with fine dry roots and grasses. It contained four eggs, incubation just begun; they were of a beautiful creamy color with a rosy flush, which disappeared however after the contents were removed; dotted on the large end with a few dark brown spots. This bird, together with the Western Warbling Vireo, can be found in every Alder or Oak grove about here from the first of May to the first of September. They are very shy, however, especially *Cassini*, and their nests are very hard to find.—*A. W. A., Beaverton, Oregon.*

NOTES FROM DANVERS, MASS.—The birds of this section, during the last month, have been driven quite close to the houses by the fierce storms and intense cold. A trip through the Pine and Hemlock groves will reveal a large number of our resident birds roosting upon the branches with their feathers puffed out to such an extent you can hardly recognize them as our sprightly little birds. This is the first Winter for a great many years that the Robin has not been seen about our woods. The Crows have come within a few feet of the house several times to feed upon the apples that were left upon the trees at harvest time. On the 3d day of February, I was called from my work to see a strange bird which was picking away at a Locust tree at the back of the house. I recognized it at once as a Golden-winged Woodpecker, (*Colaptes auratus*, Swain.) I have met with this bird so often for several years and having had it described to me by different persons so many times, I do not hesitate to call it one of our resident birds, although quite a number of them migrate by the first of November. Small flocks of the Pine Grosbeaks have at different times put in their appearance. The Snowbirds, (*Junco hyemalis*, Sclater,) have

been quite scarce here this Winter, and what flocks I have met with have been quite small. Their travelling companions, the Tree Sparrows, (*Spizella monticola*, Baird,) have been more abundant. On the 7th of February an unusually large flock of Yellowbirds, (*Stragalinus tristis*, Cab.) settled upon the weeds by the side of the road, making the air resound with their low Winter warbling, or notes. The Redpolls, (*Egithus linarius*, Cab.) have been seen quite frequently since the middle of December; the flocks for the most part have been small and scattered. Along the coast the Shore Larks have been seen in large numbers fearlessly picking up stray oats, &c., along the sides or the roads. The Butcher Bird has been quite abundant, especially in the cities, where it is lazily obtaining the English Sparrows for food.—*Andrew Nichols, Jr.*

SCREECH OWLS.—Since my last communication, I have four more city bred Screech Owls to mount and heard of several more. They have all been extremely fat and dingy looking, whilst one I had from the country was very poor and looked much smaller, but the plumage was very bright in comparison with the others.

On December 30th, I shot a Golden-wing Woodpecker, and on 31st saw another. I have not noticed them around here so late in the season, before. Is it an unusual thing?—*R. J. Tozer, Cleveland, Ohio.*

AN ALBINO CARDINAL.—The following notes were sent me by Mrs. C. W. Poole of Natchez, Miss.: "I have now a very remarkable bird, a true freak of nature. It was killed a year ago, fifty miles from here. It is a 'White Redbird'; it is unmistakably a Cardinal Grosbeak, (*C. virginianus*) but milky white, with the most beautiful rose-colored wings, tail and crest, with a dash of pink on its breast."—*W. W. Cooke.*

OWLS.—The number of Owls shot in Greenfield and vicinity since May 1st, 1884, are as follows: Three Arcadian, six Screech, five Barred, one Horned and one Long-eared. A number of Screech Owls have been seen about the town, and a few Horned Owls in the woods and swamps. One Screech Owl lives in a pigeon house on the main street, and can be seen sunning itself all through the day. Are Arcadian Owls common or rare this Winter?—*S. W. Comstock, Greenfield, Mass.*

Captured one Richardson's Owl October 15th, 1884. He flew against a store window and was slightly stunned. Several Snowy Owls have been shot. Several Northern Waxwings were taken during the Winter of 1883-4.—*J. E. Dickinson, Rockford, Ill.*

CORRESPONDENCE.

THE DESTRUCTION OF BIRDS FOR MILLINERY PURPOSES
—EDITOR O. AND O.: I am truly sorry that I should have used your space and my time in answering questions that now appear to have been asked for reasons other than to elicit information. And while promising not to repeat the blunder, I will apologize for not seeing earlier that "W. W. C." had not read the text books of the subject which he attempts to discuss, but had the quixotic faculty of seeing foes where none existed, to a degree worthy of the Don himself. I must confess that when I wrote my previous letter, I actually thought that he wanted the information he asked for. At that time his second effusion was not out, and although I knew that he was wonderful at quoting "What the great poet says," I had not seen the way in which he could find glass to break, where others can see only a solid wall. When he tries to find sarcasm in Mr. Lucas's letter, he "picks up" the correction of what he calls a "fancied error," and either because he did not know the definition of *animal* or could not apply the rudiments of logic in the formation of the simplest of syllogisms, he pronounces the "correction somewhat strained *viewed logically*." I therefore ask for your patience while I straighten out the tangle which he makes of my statements, for, having given them, I naturally do not wish "W. W. C.'s" criticisms to pass for truths by default.

In his letter of September he wants to know (1) the numbers and kind of birds used by milliners; (2) the damage done by boys collecting eggs, (both questions to be in order must be as comparative to the destruction wrought by birds of prey); (3) the reason why the destruction of birds "from the most remote time of history" had not disturbed the "nicely-adjusted balance of nature." He also brands as an "error" computation showing the damage liable to be wrought by insects plus their progeny.

To save space, for an answer to the first I referred him to an article in *Forest and Stream*, which he did not read, for a reference to it later in my letter "staggered me at first glance" and is "utterly absurd." (My authority for giving Illinois "three birds per acre" will be in Forbes *Treatise on the Food of Birds*, with which I thought him familiar, as a matter of course.)

The second seems to be satisfactorily answered.

The third he has trouble with. Although nauseated with generalities, "he calls for facts" "from the most remote time." But when I offered a few, dated from 1793 to 1875, (not "down to sixty years ago," please,) to show how wholesale destruction of birds has affected both plant and insect life, he denies that they bear on the subject because I have not proven that the birds were destroyed for commercial purposes. As if I had tried to.

"W. W. C." evidently forgot that he himself defined the "error" and "main question," for, in spite of my quotation marks, he reverses their order for me with his usual obtuseness; it is nearly as hard to believe that he has forgotten also the Locust plague of the West, (I certainly thought him old enough to remember that,) but he can find the figures that he considers so "amazingly reckless," in the Report of the U. S. Entomological Commission on the Rocky Mountain Locust.

When "W. W. C." quotes me as saying that the Potato Bug came East because the "way was paved by the Grouse and Quail being shipped East by the carload," he shows himself capable of having discovered that Scriptural text against fashion, "Top (k) not go down," (Mark xiii, 15). I had always considered that one of the best examples of perverted meaning on record.

As the Potato Bug was introduced merely to illustrate the

marvelous faculty with which insects can verify the "facts of importance," which "W. W. C." dubs an "error," his questions are fairly out of order, but if this time he really wants to know about those "degenerated birds," he will find out by reading "Potato Pest," by C. V. Riley, (now entomologist of U. S. Department of Agriculture.). Several are there given as feeding on the Potato Beetle, among them Quail, Crows, and Rose-breasted Grosbeak.

When "W. W. C." denies that I "was or could be interested" in this discussion, except as a friend of Mr. Lucas's, he forgets that the original discussion was between Mr. Lucas and the "O. and O." If "W. W. C." fails to distinguish between the taxidermist who conscientiously makes the most of the birds he uses, perhaps spending days or weeks in finishing a specimen artistically, and the collector who boasts of mutilating 11,000 skins in three months, (as one did in the Smithsonian Institute last Summer,) for perhaps ten or twenty cents apiece, I can't help, however much I may pity him. To me the same difference exists as between the settler, who shoots a buffalo to feed his family, and the butchers who slaughter a herd for their hides; I think the settler has a right to complain.

I shall await with interest the facts he has twice promised on his side of the question, especially if he attempts to prove that the birds slaughtered by man are not in addition to those killed by birds of prey, and thus make the balance turn in favor of the insects and against the former.

L. M. McCORMICK.

*The words enclosed thus, " " are quoted from "W. W. C.'s" text. (The editor and reader will pardon this precaution when they notice that "W. W. C." does not scruple to charge me with the sentiments of words quoted from his own letter.)

DO BIRDS EVER "PLAY POSSUM"? Mr. Walter Hoxie writes us: "In reply to a correspondent's query in the January 'O. and O.' I will say that the Black Vulture when wounded will 'play possum.' I hung one up by the legs the other day thinking him dead, but after some hours found him to be perfectly hearty barring a broken leg and wing. Some Woodpeckers when sitting will close their eyes and suffer themselves to be handled. The simulation of lameness of many birds in presence of an intruder too near the nest or eggs might be considered an active phase of the same phenomenon. They certainly pretend to be 'partly' dead." On page 41 will be found some references by Mr. Hasbrouck on the same subject.

SNOWY OWL. Messrs. Southwick & Jencks write us: "We notice in February 'O. and O.' that F. B. W., reports not hearing of a single Snowy Owl this season. We had one sent in about November 1st, '84, that was shot near Newport, R. I. This is the only capture we know of, though have heard of some being seen."

SPOTTED ROBINS' EGGS. (Robt. W. Wilde, Syracuse, N. Y.) Spotted Robins' Eggs are by no means rare, and have frequently been referred to in our columns.

REMOVING INK MARKS ON EGGS. You may inform W. Otto Emerson that a weak solution of sulphuric acid and water will probably remove his inkmarks on birds eggs, to use say ten drops of the acid to two tablespoonfuls of water. If the ink has penetrated clear through the shell I know not how to help him, but I have cleaned Quail's eggs that were very spotted and rusty, to a pure, clean white in this manner. The eggs must be washed after each application if more than one are required.—A. H. Mundt, Fairbury, Ill.

Notes from Chas. S. Andros on "The Maryland Yellowthroat," and from W. H. Presby "My Experience with a Screech Owl," will be inserted next month.

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No. 4.

Mississippi Valley Migration.

BIRD WAVES NO. II.

BY PROF. W. W. COOKE, MOORHEAD, MINN.

In the January number of this volume, we gave two meanings to the expression "bird waves," and used the second; in the present article we will use the first meaning, i. e., "a bird wave is an unusually large number of birds which, during one or more days, spread over a portion of our district. Viewed in this light, the work before us is to ascertain the several species of birds constituting the wave, and the boundaries of the territory over which it passed."

As this number will reach our readers early in April, when they have the movements of March well in mind, they can, by comparison, see how very different the movements this year have been in regard to date, but how similar in regard to the birds which form the van.

As but few stations sent notes on bird waves, and only a small part of these are for the country south of St. Louis, and as the record of the waves at St. Louis is so full, we will take that for our starting point, giving first the record for St. Louis, and then see how it compares with that of the other stations. The first Spring wave occurred at St. Louis, 38⁹⁰, in the latter part of January. Its record is as follows: On January 25th, a warm wave set in which continued until February 5th; the warmest day, maximum 67°, was January 30th. During this time creeks were free from ice after the 29th, and the ice broke up in the Mississippi. This first wave brought the advance guard of Robins, Red-winged Blackbirds, Purple Grackles, Mallards, Sprigtails and Canada Geese. The Bluebirds, Shrikes, (*L. ludovicianus*), Red-tailed Hawks, Red-shouldered Hawks, and Herring Gulls, which had left during the coldest term, returned. Many Gulls passed by going north and the vast number of Crows, which had swelled during the first half of January to something near fifty thousand, decreased rapidly after the 26th.

This being the state of affairs at St. Louis, our work now is to determine the boundaries of this wave. As would naturally be expected, it affected a large stretch of country south of St. Louis. If we go to the extreme south in Mississippi we find the same wave of warm weather, but, since the water fowl and other birds have been passing and repassing all the month, we fail to distinguish any special effect of this particular wave; but when we reach southern Illinois, we find a state of things exactly similar to that at St. Louis. Thus at Anna, 37³⁰, the "Ducks which had left January 2d, began to return and remained off and on during February, which has been variable, raining and freezing alternately." West of there at Pierce City, Mo., 36⁹⁶, on January 30th and 31st, the Robins and Bluebirds returned which had been sent south by the cold of January 2d; also large flocks of Blackbirds passed north, followed a day or two later by large flocks of Canada Geese, Brant, Snow Geese, Mallards, Pintails and Teal. Even as far southwest as Caddo, Ind. Ter., 34¹, the same wave was felt. It began there January 24th, but was not decidedly felt until the 28th. It entirely obliterated all signs of Winter and started the first Spring migration. Ducks and Geese moved a little, and most of the birds deserted their thick Winter coverts, appearing in town and on the prairie, while all the songsters burst forth in full Spring melody. Red-winged Blackbirds and Cowbirds increased decidedly; grass started everywhere and one wild flower was found.

Directly east of St. Louis we can trace the wave to Osceola, Ill., 35⁸⁹, where it was warm from January 27th to February 4th; snow all gone and Geese appearing on January 31st, followed by Ducks on February 2d. West of St. Louis, we find migration of Bluebirds at Mt. Carmel, Mo., 38⁴⁵, and of Robins and Geese at Glasgow, Mo., 39¹⁴. Here we have the limits of this wave, for although great in extent south, east and west of St. Louis, it proceeded no farther north. A study of the Signal Service reports

shows the reason for this. Although the warm wave was felt for several hundred miles north of St. Louis, yet its power was not sufficient to produce any marked thaw or breaking up of the streams. Indeed even in the latitude of St. Louis, no marked effect was noticed except in the lowlands. Stations in the vicinity of St. Louis and only thirty or forty miles farther north, felt no influence from it, and the same is true if we go far enough west. In Kansas there was no movement of birds. At Manhattan, 39¹², though in the same latitude as St. Louis, there was no migration; the Signal Service reports show that the nights were cold and Winter reigned until a month later. An apparently accidental movement is reported from Unadilla, Neb., 40⁵³, where Geese arrived January 31st, and Ducks February 2d, but there is a possibility that these came from the north, as on January 11th, both Ducks and Geese were reported from Vermillion, Dak., 42²⁶, where they had never before been seen in Winter. A single Robin and some Bluebirds are reported from Carlinville, Ill., 39¹⁹, with the statement that no more were seen for two weeks.

The second wave began at St. Louis the night of February 18th, and was cut short on the 19th by a fierce snow storm from the northwest. It brought the hosts of the *Fringillidae*, but appears to have been local. There is no report from other stations of any record whatever on these dates. To be sure, we have a few records as follows, of apparently irregular occurrences: a single Bluebird at Newton, Ia., 41⁴², none afterwards for three weeks; a few Canada Geese at Osceola, Ill., 41¹⁰, on February 20th, and a few Ducks and Geese at Linwood, Neb., 41²², between February 20th and 25th. The weather reports show that this warm atmospheric wave was felt even beyond latitude 41°, but such cold weather had preceded it that it could not break the bands of Winter and produce a condition of affairs that should invite the birds to farther migration. A third wave was felt at St. Louis on February 25th and 26th, but it was of too short duration to effect much of anything. Up to March 1st, Winter reigned supreme over all the land north of latitude 40°, and from February 27th to March 9th, its icy fingers again closed around St. Louis, driving all the Ducks south on March 2d, and bringing on a "second Winter."

The next period has in the record been marked "Indeterminate." It is neither a standstill nor a period of great movement. It extends from March 9th, when the second Winter was ended by a south wind, to March 16th. During this time there was a continual, though slight, northward movement at St. Louis, and much move-

ment in the region just north of it, and what was of more importance, there was a general advance of the line of open water inviting a forward march, and preparing the way for the immense movements of the following week. At St. Louis the arrivals were as follows: March 9th, the first Ducks return and pass north, followed two days later by large flocks of Red-winged Blackbirds, Purple Grackles, Rusty Grackles, and the first individuals of Killdeer, Meadow Lark and Golden-shafted Flicker. On March 12th came the first Wilson's Snipe, and on the 16th the first Brown Cranes.

There was then little change in the species present at St. Louis, but a great increase in the number of individuals. This increase was less apparent at St. Louis than at more northern points. The hosts of birds sent south by the inclement weather, did not, on their return, halt at their former resting places, but pushed rapidly forward and spread over many miles of new country. The onward movement dates from about March 12th, and during the remainder of the "indeterminate" period, that is to March 16th, Ducks, Geese, Robins, Bluebirds, Blackbirds, Meadow Larks, and Killdeer were found over all of northern Illinois and the southern edge of Wisconsin, all of Iowa and eastern Nebraska, while a few scouts keeping close to the Mississippi River, followed it nearly to St. Paul. The general dispersion of the birds can be seen from the fact that seventy-two records were sent in of the arrival in this section of the first four species mentioned, namely, Ducks, Geese, Robins and Bluebirds.

The fourth wave occurred on March 17th. At St. Louis, there was the first rain of the season after a warm night, 56°, with a light south wind. Winter ended and Spring began with a sudden start of vegetation and an awakening of insect life. Many birds arrived during the night and others were moving all the morning. The bulk arrived of the Robin, Flicker, Meadow Lark, Bluebird, Chewink, Purple Grackle, Rusty Grackle, Red-winged Blackbird, Song Sparrow, and Blue-winged Teal. There was an increase of Wilson's Snipe, White-crowned, White-throated and Field Sparrows. The first arrivals appeared of the Phoebe, Pectoral Sandpiper, Cowbird, Field Plover, and the Little Yellow Rail, while the bulk of the Tree Sparrows departed. The movement in this wave being principally an increase of those species which had already come in the preceding waves, and few of the stations reporting anything but the first arrivals, it is practically impossible to work up this wave from the notes in hand. There seem to be intimations

that the power of the wave was not great, but that its influence was felt more or less for a hundred miles north of St. Louis, and for a great distance west and southwest.

On March 22d occurs the fifth wave, which was the next to the largest of the season. The night before was warm and cloudy, with a light southeast wind; the day was cloudy and threatening, with an increasing south wind. Many birds arrived during the night at St. Louis, and others were moving all the forenoon. The following birds attained the "height of the season," that is, the period of greatest abundance: Robin, Flicker, male Red-winged Blackbird, Purple and Rusty Grackles, Chewink, transient Bluebirds, transient Purple Finches, and Song Sparrows. The bulk arrived of the Shrike, Phoebe, and Wilson's Snipe; others increased in numbers, as the White-throated, Field and Swamp Sparrows, male Cowbirds and Red-headed Woodpeckers. The first ones appeared of the Chippy, Brown Thrush, Bewick's Wren, Grass Finch, Savanna Sparrow, and Mourning Dove. There was also movement among Hawks, Ducks and Yellow Legs.

To get the full effect of this wave, we must extend our observations over nearly the whole of the Mississippi Valley north of St. Louis. The warm wave was felt almost to British America, and everywhere it started the birds northward. Owing to a lack of notes, we cannot study the movements in the immediate vicinity of St. Louis. The few stations that have furnished reports make no mention of any special movement, and notice but few arrivals, the principal one being the Brown Thrush. Not so, however, as we move farther northward. The warm weather reached Iowa on the following day, March 23d, and the general tenor of the reports from Iowa and southern Wisconsin is well expressed by the report from Waukon, Ia., 43^b: "Spring really began March 23d, and the first wave of birds came then. That was the greatest day for migration I ever saw. The bulk of Robins, Bluebirds, Ducks and Geese came and hundreds of Blackbirds."

Between Waukon and St. Louis, most of the reports speak of arrivals which agree very closely with the birds of the fourth wave at St. Louis. There is no uniformity about it, so that one could say with positiveness that the birds of the fourth wave spread over this section during the night of March 22d; but there is a general tendency that way, so that we may say that the arrivals reported on March 23d over much of Iowa and southern Wisconsin, were such as would have been noted had the fourth wave passed over the previous night. The principal exceptions are found along

the courses of the larger rivers, where the arrivals were somewhat earlier, that is, about March 20th.

North of Waukon, in favored localities, the effects of this wave began to be noticed March 23d, but in the majority of cases the following day witnessed the great advance. Its results are easily traced to latitude 45°, and in the neighborhood of the Mississippi and Missouri rivers to latitude 46°. The immense number of birds which were moving on March 23d, may be judged from the report from Heron Lake, Minn., 43^a, the report from Storm Lake, Ia., 42³⁷, agreeing with it almost exactly. It was the first wave of real migration and brought Mallards, Pintails, Gadwall, Widgeon, Big and Little Scaups, Golden-eye, Brant, Ravens, large numbers of Blackbirds, Red-heads, Canvas-backs, Butter-ball, Green-wing Teal, Hooded and American Sheldrakes, Spoonbill, Herring Gull, Coot, Killdeer and one Meadow Lark. Most of the species were in great numbers and some of the Ducks in clouds. Most of the Ducks came from the west, being probably part of the Missouri Valley flight.

By way of comparison to show how little we can judge of the migration at one place by that of another, let us move directly west of St. Louis to Manhattan, Kan., 39^d. Here during the first week of March, no arrivals were noticed. On the 8th the first birds came, that is, Ducks and Geese. (Mallards, Green-wings, Canvas-backs and Red-heads were particularly abundant). On the 11th, the first Killdeer came, and two more were seen on the 13th, and also Meadow Larks.

It seemed that Spring had really come. But a polar wave struck, March 13th, and all was changed. The fifth wave was not felt here in the least, the weather being cold and snowy. If we go southwest, we find a still more different state of affairs. At Caddo, Ind. Ter., 34^d, on March 22d, the weather is hot and dry with a continuous south wind, more like Summer than Spring. There is the least bird life of any time since February 1st; the most abundant bird is the Savanna Sparrow; there are no Snowbirds, Tree Sparrows, White-throated, White-crowned nor Harris' Sparrows, no Cowbirds, Red-winged Blackbirds, Meadow Larks, Ducks nor Geese. A few of each of these species may still linger, but the bulk left some days ago, and none are seen to-day; very little vegetation owing to lack of rain.

This fifth wave shows that as an atmospheric warm wave takes several days to pass from one end of our district to the other, so it must not be considered that the whole of a bird wave is included in a single night. If it is a small wave,

almost local in its character, the whole of its effect may be felt in a single night, but usually it occupies the whole of two days and often three or four. Nor must we think that the same bird wave must include at all places the same species of birds. We have spoken above of the "birds of the fourth wave," but we referred, of course, to the birds which at St. Louis were moving at this time. The Ducks which arrived at Heron Lake, March 24th, were as truly a part of the "fifth wave" as the Brown Thrush and Bewick's Wren which came to St. Louis on the 22d.

The rest of March is not characterized by any specially great wave. There is a steady advance until about April 1st, when over all of the northern Mississippi Valley occur snow storms which put a stop to migration for more than a week.

Kansas Bird-life.

BY PROF. D. E. LANTZ.

The State of Kansas occupies the middle of the continent, and extends east and west 410 miles. Its elevation varies from 750 feet in the east, to 3,500 feet in the extreme west. The eastern portion is wooded along the streams, while the western section is an elevated, treeless plain. The *avi-fauna* is rich and varied, and presents some peculiar features to the student of Ornithology. It is eastern in its essential features; and yet there are many evidences that the State is the borderland which separates the bird-life of the Atlantic region from that of the far west. Indeed, there are some species that are really typical of the Pacific coast region; while on the high western parts of the State, the bleached and faded forms of the great interior plateau are recognized.

The area of the State is so extensive and the number of workers in the field of Ornithology is so small, that many new discoveries are possible and even probable. This fact keeps the student ever upon the alert, and adds very much to his interest in the work. Then there are innumerable peculiarities in the distribution of our birds, peculiarities which are as puzzling as they are interesting to the observer. For instance, in a residence of several years at Manhattan but one Rose-breasted Grosbeak has been seen, by the writer; while at Clay Center, forty miles northwest of Manhattan, he found them common in July, and breeding. This is only one of hundreds of puzzling questions which present themselves to the student of birds in this State.

The topographical features of the country render the study of its *fauna* less difficult than in many of the States. There are no mountains to

climb or extensive swamps to wade in search of the birds. Instead, we have the vast prairie and the restricted timber belts along our streams. It is in the latter that birds are most easily found. Nowhere in our eastern States are birds so numerous. Here, on a bright Winter morning, by a few minute's walk, one can find Goldfinches, Tree-sparrows, Juncos, and Robins by thousands, while Cardinal Redbirds, Song-sparrows, Chickadees, and Woodpeckers will seem to start from every bush. Or, if one visit the same place at the height of the Spring migration, the woods will ring with the songs of hundreds of Wood-thrushes, Warblers, and Vireos; while Lincoln's Finch and the Clay-colored Sparrow will flit from every thicket along the borders of the woods.

The secret of this abundance of birds seems to be in the restricted area of forest; and yet every orchard and garden seems, at the same time, to overflow with bird-life. And on the great green prairie every weed and bush seems to be crowned in springtime by a vocalist in the form of a Black-throated Bunting, a Western Meadow-lark, or that ridiculously ambitious songster, the Yellow-winged Sparrow.

Aside from this abundance of individual birds, the number of species and races found in the State is quite large. Col. N. S. Goss, has catalogued 324. When it is remembered that the water fowl of the sea-coast are entirely lacking, this large number is an excellent proof of the careful work of such observers as the Colonel, Prof. F. H. Snow of Lawrence, and Dr. L. Watson of Ellis.

The first attempt to catalogue the birds of our State was in 1872, by Prof. Snow. This list was twice revised and changed. The third edition was published in 1875. This enumerated 295 species, a number of which, although inserted upon seemingly good authority, would undoubtedly be omitted should a new edition be issued. Seven additional species were added to Prof. Snow's list in a paper read before the Kansas Academy of Sciences in 1878.

Col. N. S. Goss, the noted Western Ornithologist, issued a catalogue of our birds in 1883. This is in every sense a complete list, as far as the knowledge of our birds at that time would permit. Four varieties have been added since its publication. These were reported by Col. Goss in the first number of "the Auk," Vol. I. In this list a number of those enumerated by Prof. Snow have been omitted for want of actual proof of their occurrence in the State. On the other hand, the Colonel has paid a high compliment to the Professor by retaining a number based solely upon the authority of his catalogue of 1875. Nearly all of those omitted will probably yet be

found to occur regularly in the State. Colonel Goss enumerates about 30 species supposed to have their geographical range within the State, but which have not yet been taken. Some of those catalogued were taken in the State in 1871 by Prof. J. A. Allen, but have not since been recognized.

Col. Goss has probably the most complete collection of mounted specimens of North American birds in existence. Every specimen has been mounted by his own hands. This collection is displayed in one of the rooms in the State House, at Topeka, and attracts many visitors daily. When the main portion of the capitol building is completed, three rooms will be devoted to this collection, and instead of presenting its present crowded condition, there will be ample space to do justice to this magnificent collection.

And yet these few workers have far from exhausted the field for Kansas Ornithologists. Col. Goss has visited many parts of the United States and Mexico in search of his treasures, but has left unexplored large portions of this State. Prof. Snow's duties in the class-room and his devotion to other branches of Natural History, have given him less time for Ornithology, so that he has been largely dependent upon others for field work. Dr. Watson's observations, although of the most careful and conscientious sort, have been necessarily in a restricted field. The visits of Prof. Allen and Dr. Coues to the State were but for a short period, and were made before the conditions for bird-life had reached their present favorable state. It is well known that Kansas has undergone great climatic changes in the past dozen years. But much greater have been the changes in the physical features of the country. The planting of hedges and orchards has greatly extended the range of many species of birds; and unfortunately, the destruction of timber along our streams, has restricted that of others.

It is the purpose of the writer to give the readers of the "Ornithologist" the benefit of his observations at different seasons, in a series of papers, the materials for which are in his note books. There is little that is really new; but the vast difference between the birds here and at the east, was quite striking to me, and may be instructive to my fellow-workers.

The Northern Shrike as a Singer.

BY C. K. AVERILL, JR., BRIDGEPORT, CONN.

I think most of our books on Ornithology overlook the song of the Northern Shrike. I have not heard it mentioned except by John Burroughs in his delightful book "Locusts and Wild Honey."

But it is not unusual to hear them sing and they are certainly gifted in power of execution, as the human vocalists say, although the quality of tone is inferior to that of most of our songsters.

The song of one of them is still fresh in my mind. I heard him on March 4th, this year, at sunrise singing from the top of a cedar tree in a field. I walked up to the tree, and when he flew, I saw that he carried something with him about the size of a small bird or mouse. He had not got a rod from the tree when he dropped it, but immediately pounced down and picked it up. I hurried back to the house, got the gun and was back again in about half an hour. He was still singing from the top of a tall chestnut tree in a grove close by where I had first seen him. I had no difficulty in walking within easy shooting distance, but before shooting stopped to listen to the song. Although I stood for some time listening, he made no break or pause, but went right on as if there were no tire about him. I cannot liken the song to that of any of our song birds. It was somewhat after the style of a Brown Thrush's, but the tone was much less musical, and it must be confessed, was often squeaky. But frequently there was thrown in a note almost exactly like the ringing, musical tone that the Blue Jay often utters. I cut him open on getting home and took out a lot of the fur and some ribs of a field mouse.

A gentleman living in the outskirts of our city tells me that he has often heard them sing, and that they imitate the songs of other birds for the purpose of attracting them. I do not put any faith in this notion. I am convinced that the one I have just told about sang out of pure physical enjoyment, or exuberance of spirits, or whatever it is that makes a bird sing. Certainly he had no difficulty in getting his food, and when I first heard him was carrying his breakfast around with him, and afterwards was singing with it in his inside.

Three or four days later, I saw in a small Elm tree by the road side a Goldfinch stuck in among some small twigs that grew out from the trunk about ten feet from the ground. I climbed up and pulled it down, for it was wedged in too tightly to shake down. It was dead of course. On taking off the skin there was no sign of injury except that the neck was broken two or three joints from the head. Without doubt this was the work of a Shrike.

Since then I have only seen one Shrike and that in the middle of the day. He did not favor me with a song, but sat on a Sumach bush motionless, but for the movement of his long tail which went up and down like a Pewee's. Once he got down from his perch and picked up some

thing from the grass. On going there I found several small Grasshoppers (so called) in the wingless state, of a dull brown color, having the inside of the thighs light green with two black blotches.

A Catalogue of the Birds of Kalamazoo County, Michigan.

BY DR. MORRIS GIBBS.—PART III.

42. [107.] *Dendroica virens* (Gm.) Baird. Black-throated Green Warbler.—A very common species and may prove a rare Summer resident. Arrives from April 23 to May 4. It is a beautiful, graceful bird and well known to all collectors. On its return trip it appears about August 30, and remains often as late as Sept. 30.
43. [111.] *Dendroica pinus* (Wils.) Baird. Pine-creeper Warbler.—A common vernal species. Not so abundant in the Autumnal migrations. This is one of our earliest Warblers and frequently appears by April 20. A few undoubtedly remain during Summer. Taken as late as Oct. 12.
44. [113.] *Dendroica palmarum* (Gm.) Baird. Red-poll Warbler.—I am not sure that I have embraced the correct species and think this may be the variety according to Ridgway's check list, where is embraced a variety. We have a Yellow Red-poll Warbler anyway, and it appears from April 25 to May 5. It remains with us in straggling flocks until the last week in May, when all disappear and none are seen again until September. Common occasionally in early October.
45. [114.] *Dendroica discolor* (Vieill.) Baird. Prairie Warbler.—A migrant. Never common here. Arrives in the first week in May, and stragglers may be found till after the 20th. Appears again from the north in September, but is rare in the Autumn.
46. [115.] *Sialurus auricapillus* (Linn.) Swains. Golden-crowned Thrush.—A common vivacious fellow found in our county from April 26 to October 1, or later. Breeds abundantly. A well known species liked by all.
47. [116.] *Sialurus naevius* (Bodd.) Coues. Small-billed Water Thrush.—I have met with this species but once in the county, May 13, 1875, and the specimen is the only representative the collectors have here. This is not an unusually rare species in other parts of the State, but its range is wide of us.
48. [117.] *Sialurus motacilla* (Vieill.) Coues. Large-billed Water Thrush.—A common species during four months of the year. This is undoubtedly our earliest arrival among the Warblers, although the Yellow-rump is generally supposed to be the first to reach us. The Large-bill arrives frequently on April 12 and 13, and is often common by the 20th, whereas the Yellow-rump generally gets here about the 18th. Mr. Chapin found a nest of this species during the season of 1884 in a low piece of woods near the river. The date was May 24, and the nest contained one egg. After August few birds are seen about the black pools of the woods, but the birds are so timid that they are not found, although they stay with us until Oct. 1, at least.
49. [118.] *Oporornis agilis* (Wils.) Baird. Connecticut Warbler.—I feel confident in asserting that this species is one of our rarest Warblers, and also that it is in the last few years becoming more common, if we may use a term that is to apply to a species seen for the first time within the boundaries of which this list treats, during the last six years. The first specimen secured was taken in 1880 by Mr. Syke. Mr. Chapin has taken three specimens as follows, May 27, 1881, May 28, 1883, and May 25, 1884. He claims that the Connecticut Warbler is the last of the family to arrive. He describes the song as loud, clear and easily heard, and not like that of any other bird.
50. [119.] *Oporornis formosus* (Wils.) Baird. Kentucky Warbler.—It is fair I think to embrace this species as a Kalamazoo Co. bird. In 1875, while actively engaged in collecting, I secured one day a large number of specimens, and as the weather was exceedingly warm I found it impossible to preserve them all. At the time, when I was busily engaged in my heated task, I was called away, and on my return found several specimens past recall; among them one specimen of this species which I analysed carefully but could not save.
51. [122.] *Geothlypis trichas* (Linn.) Cabanis. Maryland Yellow-throat.—A very abundant species from late April to late September. My earliest record of arrival is April 20. Breeds abundantly, but the nests from their situation are rarely found.
52. [120.] *Geothlypis philadelphia* (Wils.) Baird. Mourning Warbler.—Mr. Syke has taken a single specimen. Although common to the north, this species is extremely rare in our county. The birds must pass north to the west of us.
53. [124.] *Myiodioctes mitratus* (Gmel.) Aud. Hooded Warbler.—An abundant Summer resident, arriving from the south in early May and remaining to breed in some numbers. Several nests have come under my eye within the last ten years. They were all placed in Beech and Maple woods, with one exception, and were ready for the eggs about May 30.
54. [125.] *Myiodioctes pusillus* (Wils.) Bp.

Black-capped Yellow Warbler.—A very rare species and only thrice captured in the county. Taken May 16 and Sept. 9.

55. [127.] *Myiodiocetes canadensis* (Linn.) Aud. Canadian Flycatching Warbler.—A rather common but irregular migrant. A few may remain to nest with us. A late arrival generally, not appearing as a rule before May 10.

56. [128.] *Setophaga ruticilla* (Linn.) Swains. American Redstart.—A very common species. Breeds abundantly. Arrives from April 25 to May 4. Remains until late September.

57. [152.] *Progne subis* (Linn.) Baird. Purple Martin.—Arrives from April 1 to 16. The date of April 1 is remarkably early and only occurred one season. The species generally arrive from April 6 to 10. A very common species. Breeds abundantly. Not so numerous as formerly, as it is driven away by the pertinacious English Sparrow. Depart for the south in late August. On one season I did not see a bird after September 1, but as a rule a few stragglers may be seen after that date. The large majority of the birds disappear in one large flock.

58. [153.] *Petrochelidon lunifrons* (Say) Lawr. Cliff Swallow.—Known generally in Michigan by the name of Eave Swallow. Very abundant. Arrives generally from April 15 to 20. Breeds in large colonies usually. Have found a hundred pairs occupying the shelter afforded by the eaves of barns and sheds on a single farm. The nests, well known to all, are often built in such numbers that thirty or more are found attached to the sides of a barn under the eaves. It has been advanced by some writers that the nests are usually placed on the south sides of barns and sheds. This is, I think, a mistake. I believe the birds prefer the east and west sides equally well. The north side is however rarely occupied. Only a few nests are found in such situations. Eggs laid from May 25 to June 15.

59. [154.] *Hirundo erythrogastra* Bodd. Barn Swallow.—A common species with us from May 1 to Aug. 15. The earliest arrival is April 12. The first seen one season was on April 24. Breed abundantly in the barns and sheds, sometimes in colonies of over a score of pairs. A well known and very useful species. Eggs laid from May 20 to June 10.

60. [155.] *Tachycineta bicolor* (Vieill.) Caban. White-bellied or Blue-backed Swallow.—Our earliest arrival in the family. Appears from March 29, in very early seasons, to April 12. Generally about April 5 to 8. Some seasons the birds will appear at an early date, and on cold weather returning, will disappear for a fortnight or more. The eggs are laid from May 1 to 20, usually about

the 10th. The species breeds abundantly in the vicinity of lakes and streams surrounded by dead trees. The nests are placed in holes from six to thirty feet from the ground. Common till late September.

61. [157.] *Cotile riparius* (Linn.) Boie. Bank Swallow.—Arrives from April 12 to the 24th. Begins excavating in the sand banks soon after arriving, but rarely lays its eggs before May 15. Have found the nests nearly completed at the ends of the burrows by April 30. The Bank Swallow is a common species with us. It breeds frequently in colonies, but isolated pairs, or two or three pairs are often found at roadsides where suitable building sites are found.

62. [158.] *Stelgidopteryx serripennis* (Aud.) Brd. Rough-winged Swallow.—Not what we may call an abundant species. Not nearly so common as the last. Arrives about the time of the appearance of the last, but a little later I think. I am not able to present reliable data of arrivals, from the fact that I confounded the last with the Rough-winged until within a few years past, and am as yet unable to distinguish them in flight. Have found the species breeding in company with the more common Bank Swallow.

63. [161.] *Pyrranga rubra* (Linn.) Vieill. Scarlet Tanager.—An abundant Summer resident. Arrives from April 22 to May 12. Remains until about the middle of September. The nests are often found, and are most common, containing eggs, from May 26 to June 10. I think but one brood is reared during a season. The birds are moulting in the last half of August, and are quite silent after the middle of July. The song is very beautiful, and the singer has the peculiar and agreeable habit of often singing in the night. Many people are not aware of the melody of this bird's song, and look upon it only as a gaudy gem of color. To those who are acquainted with the Tanager in its woodland haunts, however, the song far outranks the brilliancy of plumage. It is one of a few of my special favorites.

The Bay-breasted Warbler (*Dendroæca castanea*), in Locke, Mich.

BY DR. H. A. ATKINS.

This lovely Warbler I have always found exceedingly scarce in our township. I have within the last thirty years only met with three specimens, all found, as will be seen below, during the vernal migrations. Dates of appearance as follows:

May 25.	1867—♂
May 14.	1877—♀
May 21.	1883—♂

The weight of the last one taken was 221 Troy grains.

THE ORNITHOLOGIST

—AND—

OÖLOGIST.

A MONTHLY MAGAZINE OF

NATURAL HISTORY,

ESPECIALLY DEVOTED TO THE STUDY OF

BIRDS.

THEIR NESTS AND EGGS.

DESIGNED AS A MEANS FOR THE INTERCHANGE OF NOTES
AND OBSERVATIONS ON BIRD LIFE.

FRANK B. WEBSTER, Publisher,
PAWTUCKET, R. I.

Editor's Notes.

We have received the International Scientists' Directory for 1885, (S. E. Cassino & Co., Boston). The large number of names contained in this directory, covering every quarter of the globe, makes it a useful addition to one's reference library. We are pleased to notice the large proportion of asterisks, showing the addresses have been verified since the last edition.

The last few months have brought their usual crop of new magazines. Amongst them we note the *Journal of Mycology*, published at Manhattan, Kansas, devoted to North American Fungi; the *Worcester County Naturalist*, published by the Young Men's Scientific Club, Worcester, Mass.; *Tidings from Nature*; *The West American Scientist*; *Pacific Science Monthly*, etc., etc. We have also been informed of still newer aspirants for a place in a field already more than occupied.

Mr. A. W. Butler favors us with reprints of articles contributed to the *American Naturalist* and *American Meteorological Journal* on "The Habits of some Arvicolinæ;" "Hibernation of the Lower Vertebrates" and "Local Weather Lore." We have also to acknowledge "Migration and Distribution of North American Birds in Brown and Outagamie Counties, Wis.," an

exhaustive essay by Mr. S. W. Willard, De Pere, Wis.

Bird life seems unusually late in our vicinity this year. Up to March 26th, Winter reigned undisturbed, and the few migrants were not demonstrative. Fine Spring days on 27th and 28th, infused a little enthusiasm, only to be checked by a heavy snowstorm on the night of the 28th. Several of our correspondents refer to the lateness of the season. Dr. Atkins (Locke, Mich.) says that up to the 26th, only three migrants, the Crow, Robin and Mourning Dove, had made their appearance. On the other hand, our reports from the Pacific slope are widely different. Mr. Emerson writes from Haywards, Cal., March 23d, that it is the earliest season he has observed in five years. Nests have been taken that are a month ahead of time.

We insert this month "Hints to Collectors" by a practical ornithologist whose name, were we at liberty to publish it, would be a guarantee at once for the correctness of his opinions and the soundness of his advice. There is much practical common sense in the writer's remarks, and we commend them especially to our readers whose experience in the field is yet to be gained.

With this number, Mr. Walter Hoxie's "List of Birds of the Sea Islands, So. Car." is completed. No one can have examined the lists given in our magazine since January, without being struck at once with the great variety of birds which visit the Sea Islands during the year, and the keen observation, extending over many years, which Mr. Hoxie has shown in his notes. Few fields so rich, or observers so competent, are to be found either on our coasts or elsewhere.

We are asked for a list of the birds of the vicinity of Lake George, N. Y., and also for one of Long Island. Perhaps some of our readers will supply us with these *desiderata*.

Hints to Collectors.

The season for collecting is about opening, and though some of the more enthusiastic have been rambling the woods for a couple of months past, the large majority of collectors are just getting ready for the onslaught on the birds and eggs.

As I write, the snow lies over a foot deep in the streets, while it is over two feet deep in the woods, and the mercury only indicated $+4^{\circ}$ this morning. I know that many Great-horned Owls are sitting, while a few broods may have hatched; but the migrants have not appeared in any number thus far, and we have ample time to consider the prospects of the coming season.

It has occurred to the writer during the past few years, to write out a few suggestions and send them to the "O. and O." regarding the collecting of specimens. This idea suggested itself on our recalling to mind our early efforts, and the attendant failures of twenty years ago. A few suggestions in season would have been invaluable to us, and saved many specimens which became mutilated wrecks and were thrown away. It is hoped that the following hints will be of some service to many readers of the "O. and O." who are ardent collectors, but with limited experience. We trust that the writer's continual reference to himself will not appear improper, as it is only of one's own experience of which one can speak with certainty, and then from necessity we appear pedantic.

OUTFIT FOR A DAY'S TRIP—Gun. A light, double-barrelled shot-gun of 16 to 20 gauge is best for general collecting. It should weigh from $6\frac{1}{2}$ to $7\frac{1}{4}$ pounds. The barrels should be from 24 to 30 inches in length. The gun with which I have done the most of my collecting, is an old fashioned muzzle-loading stub and twist, bore 16, length of barrels 24 inches, weight $6\frac{1}{4}$ pounds. Originally the barrels were 32 inches in length, but I find that the gun gives about as good a pattern with the 8 inches cut off, and it is infinitely easier to carry. A small gun is vastly superior to a great heavy 10 bore in general collecting. A 12 gauge breech-loader, weight $8\frac{1}{2}$ pounds, with which I have killed game during the past three years, is excellent for general hunting but does not compare with the muzzle loader for short range work. Collectors should remember that the choice of a gun is one of the principle points for a season's work. Don't buy a high priced gun, but one which will do good execution. Do not buy a cane gun or one with a skeleton stock. They are a delusion and a snare. A suitable breech-loading gun with accoutrements can be bought for \$25.

Knife. Get a good two-bladed jack-knife, with

one blade four inches long, and the other an inch or more shorter. Get a strong knife which will wear well and do good work.

Collecting Box. Anything will do provided it is light and conveniently arranged. My box is of heavy tin, 14 inches long, $7\frac{1}{2}$ inches wide, and $5\frac{1}{2}$ inches deep. It is double, folding in the middle, and is carried in the hand by two wire handles, or can be carried at the belt readily. It weighs three pounds. It is large enough to carry a big luncheon, my drills, scalpels, scissors, arsenic &c., and 40 loaded shells. On the return at night, I have carried as many as 20 small birds in it, besides a dozen sets of eggs, and I once carried 107 eggs in it, the result of one day's collecting. It has two large sections, and four smaller compartments for eggs. A trout basket is easy to carry on a trip, but the specimens are very liable to be injured by the shaking up they get. The collecting box with separate compartments is the best. It is bulky and often inconvenient to carry, but the specimens are well preserved, and this is the main point in collecting. Anything which is worth doing is worth doing well, and we must not expect to do a good day's collecting without some drawbacks. If we secure a dozen birds in good feather and a few sets of eggs all nicely blown, it is a great deal better than 30 to 40 missed birds and a lot of eggs mixed together without proper labeling and the majority cracked and ruined. A good collecting box can be made for two dollars and will last for twenty years.

Drills and Blowpipes. Four drills are enough for a collector. One small and very fine drill for small and delicate eggs; one a trifle larger and coarser in its burr; one about $\frac{1}{4}$ inch in diameter for general work; and one large—quite $\frac{1}{2}$ inch in diameter, for the larger eggs. If I were to select only two drills, I would take the largest and smallest, for with care all the work may be done with them. Glass blowpipes are best. They are cheap and if lost are easily replaced. Take a glass tube 16 inches in length, cost 10 cents, and with a diamond cut it into four equal lengths. Hold one in an alcohol flame and blow in it with one of the other pieces. When it is softened, bend the top around to one side with an old pair of tweezers and draw the point out to the desired fineness. The four may vary to suit the collector, the holes or apertures being large or small as required.

Climbers. My advice is "leave them at home," sell them to some other boy. Climbers are good in case of repairs on a telegraph line, and little danger is incurred by men used to them in that business, but when it comes to climbing large trees with rough bark, please excuse me. I want

to rely on my hands more and not entirely on my feet when shinning a big tree. The older a man grows the wiser he becomes as a rule, and very few men of reason will attempt to climb a dangerous tree after arriving at the age of discretion. If I should see a man of 40 or 50 shinning a large rough-barked tree with climbers, I would say "an old fool is the biggest fool of all." Don't risk your life for one set of eggs.

Lunch. Hard boiled eggs and bread and butter are enough for any man if he likes them. A slice of meat goes well. Don't take too much alcohol, but a good square meal. No coffee or tea. Plenty of good water almost everywhere. I used to collect with a friend who carried lemons and sugar, and insisted on making lemonade several times during the day. He was a first rate hand at a picnic. He sold out his collection cheap and soon lost his interest in Natural History. An enthusiastic collector often forgets to eat his lunch for hours aftertime, and the majority I think, when collecting eat their lunches on the move.

What You Don't Want. Do not encumber yourself with a hatchet, revolver, cartridge belt, heavy game bag, duck call, dog, heavy boots, whiskey bottle or any other of the dozen useless things to a collector, but generally considered necessary to a hunter. Go light. Wear the oldest clothes you have. You are not a dude on exhibition, but a collector at work. Wear a flannel shirt; a slouch, or straw hat according to season; Light pants and vest, a light coat too if necessary, but you had better leave it at home if the weather permits. Wear the lightest shoes you can get of good leather. Never wear boots. No danger of snakes. If you are afraid, stay at home. Never mind the color of your clothes, any color is good, only let them be dirty and worn. If they are not so, they soon will be. Many writers talk of dead-leaf suits and pepper and salt as the best to wear in the woods, as the game can't see you. Don't be afraid of that. If you go slow the game won't see you, and if you are not good at woodcraft, no matter what you wear you will be seen as soon as you reach the game. And further, you don't want a lot of fellow collectors along with you or little boys of the neighborhood. Never go out with more than two, a single companion is better. Most of my collecting has been done when entirely alone, and my best work has always occurred when on a long tramp alone.

CAMPING OUT. You need something additional when camping out while on a collecting trip. More food and clothing as well as ammunition, arsenic, &c. I have slept on the bare ground next to a fire many times after a hard day's work in woods and fields. But it is not agreeable. I re-

call to mind one trip when we camped in a small grove near a large marsh which we had been collecting in, and from which we emerged wet to the skin, having been in the water a good deal. We only had straw for bedding, and did not bring any blankets, as they occupied too much space in a twelve miles tramp. We might have gone to a farm house, but were too enthusiastic to sleep beneath a roof, and the chances are that the farmer would have rejected any such an offer when he saw our muddy condition. The night was quite cool, and as the fire partially died out, we turned uneasily on our hard beds and changed sides, freezing on one side and roasting on the other. A gust of wind caused a spark to ignite the straw on which Ben was sleeping, and before we could lend a hand the flames had caught his coat, which, though warranted "all wool" soon had a hole in it of such magnitude, that the wearer had to loop it up with string, and on his return to the city, caused him to steal to his home after the shades of night had fallen. A good heavy blanket is enough for a healthy man during May and June, if he understands building a fire. A small shelter tent large enough for two, is not inconvenient to carry. I would recommend the readers of the "O. and O." to secure Nessmuk's "Woodcraft," price \$1.00, which contains a great deal of valuable information, and particularly on the point of camping, and camp cookery. When you go for a few days' collecting trip, I advise you to sleep at night in farm houses, if possible, or in the barns, if the farmer thinks you unfit for the house, but if you prefer to sleep out, take blankets. Always walk. Don't ride unless you have a limited time for collecting, and the grounds are a good way off. I don't think much of collectors who always ride to the woods and lakes. They miss a great deal on the way. When you go camping and want to economize in space and weight, carry dried beef. There is nothing like it.

Your Work in the Field. Rise at 1, 2 or 3 A. M., according to the distance you have to go to reach the grounds. You want to be on the spot when the birds begin to sing. I have arisen at 3, and had my days' stock of birds to skin before 5. I have walked twelve miles before breakfast. You can't get up too early in the Spring, when the birds are migrating or laying. Your most important work, of course, if you are a thorough student of Ornithology, is the keeping of records of arrivals, dates of nesting, observations of all kinds, on song, habits, food, &c., &c. Your note book is rapidly filling as you walk along. You add a new arrival here, speak of the first nest of a species there, and keep writing as you stop now and then in your walk across country. Finally

good shooting grounds are reached. You draw your cartridges from the pockets, a No. 10 from the left coat pocket, and a dust from the right, while you make sure that the sixes are in your pant's pocket, so that you can change at a moment's notice if you see a hawk. Warblers are numerous and you shoot several specimens, always being very careful to sprinkle the bloody portions with plaster of paris from the salt box which you took from the dining table at home, and filled the night before. It works admirably and you wonder you did not think of the plan before. You then stuff each throat with cotton, being careful to force the pledget thoroughly within the throat, and not leaving any fibres hanging out, as that would allow blood to stain the breast feathers. The birds are all placed carefully in cones of paper from 8 to 12 inches long, head downwards, in which position they will not ruffle, and the specimens being packed away in the collecting box, you move on. Let me say one word in regard to general collecting. You may be a most enthusiastic Ornithologist, with a wish to devote all of your time to the studying of birds and the collecting of skins and eggs, but we would suggest that in your trips you also take notes in the other departments of Natural History. In a short time you can familiarize yourself with the reptiles, mammals, insects and plants as well as be adding valuable notes and specimens to book and cabinet. Never pass a rare turtle, snake, insect or plant, without making an effort at preservation and identification. No one can afford to be in the woods without a note book, if he ever expect to become a thorough field naturalist. After a year's effort at this kind of work, you could not be hired to omit noting the arrivals, remarks on habits, &c., &c. Amateurs are too liable to rush into collecting with a zeal which is quickly quenched as the season advances, and there are no specimens to add to the cabinet. Thousands of foolish boys slash into the birds and eggs for a season, intent only on securing all they can, and desirous of outshining some companions in the nefarious business. At the end of the season the eggs, a cracked, unlabelled lot, are lumped off to some itinerant dealer in curiosities, or sold to some younger boy, still interested, while the birds' skins are laid away to be devoured by mice and moths, or thrown into the fire by an over particular mamma. Such boys never make Ornithologists, or even true lovers of the study. The class is however a large one. I wish there were fewer of them. I would like a law enacted which would provide for the imprisonment of all such boys. I was a boy myself, but a skin, egg or insect was as sacred to me as the awards of merit I received

at school. There is but little chance of succeeding in becoming a capable woodsman familiar with the creatures of field and forest, or the possessor of a good cabinet of specimens, unless the work is persevered in from year to year. Those who have not the real love of nature in their hearts, and who only collect because of the prospect of gain, or with a view of excelling some friend, had better stop collecting at once and devote their wasted energies to other channels. In case you are out for day's trip, your birds will usually keep nicely until you can reach home, where you at once place those you do not intend to skin at the time, in an ice chest from which you can take them from time to time as required. Don't shoot more birds than you want. If it is your first year, five birds are enough for you. If you are a rapid skinner, shoot 10 to 20 if the weather is warm, and you have a cool place to keep them. If you go out but a few times a year, and wish to make the most of your trip, 30 to 50 birds may be shot if the weather is cool and you are a good skinner. I find that 10 to 15 birds are all I can attend to after a day's trip, and all of these are rarely finished until the next evening. In case of shooting a large number of birds sit up nights, all night, to finish them, but don't let any spoil. It is a crime to shoot birds and let them spoil. Sometimes the weather is so warm that birds will spoil in a few hours, and long before the collector reaches home. In extreme weather, I frequently disembowel some of the first specimens shot in a day's collecting, and fill the cavity with dry cotton containing a few drops of carbolic acid. When on a two or three day's trip, the birds may be skinned each night, the preservative applied and the skins laid away nearly flat until you reach home, when you must at once arrange the feathers, and if the skin has become too hard, they must be treated to a sand bath to soften them. Blow your eggs in the woods, many collectors, I think the large majority, blow their eggs after reaching home. Don't do it unless the eggs contain large embryos which will occupy too much of your limited time in the woods. You can pack them in a much smaller space than those with the contents in, as they do not require so much cotton and are much less liable to break. Always wash out the eggs with fresh water, and afterwards drop in a few drops of "Fowler's Solution" which contains enough arsenic to poison the egg. It may be bought at the drug store.

After You Get Home.—Unpack all of your specimens at once. If you have not numbered your eggs do so at once, so the sets will not get mixed. Place the number to the right and a little below the hole, with the small end of the egg at your

right. The number reads thus, for example, 1042-3 on each egg of set, and on turning to our index record for eggs, we find that we must write down "No. 1042. Chipping Sparrow, number of eggs in set, 3. Date, May 19, 1885. Collector, John Smith. Locality, Mount Vernon. Remarks: Common; nest seven feet above the ground in a small Evergreen; bird seen." Next we get to skinning our birds, of which we cannot speak fully here, as a description is too lengthy, and most of you are familiar with the process. Some people are born taxidermists; others never will make skimmers. Some are satisfied with most any kind of skin; others are hard to please. I have only skinned about ten birds in my life which fully satisfied me. The art of skinning a bird properly is only acquired by long practice. Don't be discouraged, and finally you will succeed. Always bear in mind that one good skin is worth a dozen poor ones. Attempt to do better work each season and you will succeed. Always label each bird with its number, date of capture, name of collector, locality, dimensions of bird in inches and hundredths, remarks, &c. This label should be copied into the index record for birds, and can always be referred to by number.

Preservatives.—Use arsenic two parts and alum one part. Mix well together after alum is thoroughly pulverized by druggist.

Exchanges and Sales.—I stopped exchanging specimens years ago. It does not pay. It is a loss of time and a waste of postage and express charges, and you never feel satisfied with your bargain. Why? Because you did not collect the specimen yourself. In exchanging you ruin many valuable specimens, particularly eggs, and hard feelings are aroused. My advice to young collectors is, do not exchange, buy or sell. Collect your own specimens for the first few years, then after you are master of the habits of half the birds of your own neighborhood, you may with propriety exchange with some reputable dealer. Do not collect eggs to sell. It is a villainous habit and hardens a man's heart. A good reliable dealer in eggs and skins I uphold, but a mercenary, ignorant, itinerant jobber with boys, I detest, and so does every honest ornithologist.

Cabinet.—Get a good tight case made, from 4 to 6 feet high and from 30 to 55 inches wide. For smaller skins and eggs, have drawers two inches deep; for larger specimens, from 4 to 6 inches or more deep. A good cabinet with twenty drawers ought to be built for \$16 to \$25.

Caution.—Don't break your neck to shoot Albinos. I have never shot one in my life. They are useless. People who are always talking of

Albinos are lovers of abnormalities. I always pass by them. We want nature and not freaks. Never shoot a bird for a lady's hat. You will feel guilty every time you see the maltreated specimen on the street. JOHNIE.

The Cardinal Grosbeak in Central Park.

BY A. GARDNER PAINE, NEW YORK CITY.

The occurrence of the Cardinal Grosbeak, (*Cardinalis virginianus*), in Central Park is not so much to be wondered at as one might first suppose, who had not studied the habits of the species. The bird is slowly, but I think surely, extending its range northward. A colony was naturally founded in Central Park about ten years ago, and has been increasing ever since; a few pairs remain through the Winter. In the Spring the number increases considerably, estimated by a gentleman connected with the Park, at about one thousand birds. The distribution is more or less local, but not necessarily confined to the secluded parts, which seems to contradict the numerous statements of its being a shy inhabitant of the thickest shrubbery.

During the breeding season, which commences in June, the males are inclined to be very quarrelsome, but otherwise they are peaceable enough, and seem to be fond of each other's society. For a time a few visited the Arsenal, situated on the border of the park, in order to procure the corn which was thrown out for the Peacocks. These visitations, however, suddenly ceased; the cause was very likely due to the English Sparrow, whose enmity to all of our birds is so well known.

The Grosbeaks are not so tame as might be expected of birds inhabiting Central Park; the male especially seems to realize the conspicuousness of his dress, and probably for that reason is more retiring. The male Cardinal is a famous vocalist, and strangely enough the female possesses the same talent, her lord and master being very little her superior. For this accomplishment alone, setting aside the beauty and other attractions of the bird, we ought to protect and encourage in every way, the few birds which attempt to settle in this part of the country.

The Maryland Yellow-throat.

(*Geothlypis trichas*.)

BY CHAS. S. ANDROS, TAUNTON, MASS.

This beautiful little bird, also known as the Black-masked Ground Warbler, is generally ranked as common in this part of the State. It

abounds along the brooks and swampy lands, inhabiting bushes on the edges of creeks and ponds. The male cannot be mistaken after once being seen. The black mask completely covering the head, and handsome yellow throat are his most prominent features. The female is of a much duller hue, and her modest plumage is in great contrast with that of her mate. They arrive in early May and may be easily approached, not having that fear of man so often displayed by others of the family. The female, I believe, is rarely seen unless flushed from her nest. After her treasures are removed, she takes a silent farewell and is not seen about the locality again. Walking along beside some swampy land, a male will take alarm at the sound of your footsteps and fly from some bunch of ferns near at hand, quickly followed by another and another, until half a dozen have flown from the spot, and it is a mystery where they go. But if you proceed, another flock will leave the next large clump of ferns. Whether they believe in concealment or what their motive is, is to be solved. I have watched the ferns where they disappear, for perhaps twenty minutes, and not a sign, but move towards their place of concealment they immediately leave. Their nest is built in the latter part of May. Earliest date for fresh set, June 4. Latest date, June 17. The latter nest taken during the season of '82, contained five eggs of pure white ground and marked with scrawls and spots about the crown, with one or two black spots resembling a dot of "India ink." The nest is placed on or near the ground in some swampy land, composed of leaves and grass and lined with fibres and grass, arched over and with a small entrance. I have remained in close proximity with one some time before discovery. A nest found last season in a very low bush contained four fresh eggs. The bottom of the nest was thickly tenanted by black ants, evidently not in a very peaceable frame of mind, as my hand and arm testified on reaching home. How the female could share her home with such unwelcome guests, I cannot imagine.

My Experience with a Screech Owl.

BY W. H. PRESBY, EAST CAMBRIDGE, MASS.

Several years ago it was my good fortune to have as pets, several of the feathered tribe that are usually considered anything but desirable for cage birds. Thinking that an account of some of them might be of interest to the readers of the "O. and O." I have concluded to give you first, my experience with a little Screech Owl that was captured one morning in the early Autumn by a

friend, who found it roosting in a thick clump of Alders by the side of a river, where he had evidently been overtaken by the daylight and concluded to camp for the day. At the report of the gun he tumbled headlong into the underbrush, and my friend was considerably surprised on going for his prize, to find him "sitting up" and looking as calm as if nothing had occurred to disturb his morning nap. But with all his calm exterior, it was only after quite a lively encounter that he was finally captured and stowed safely away in a capacious coat pocket. On arriving at the house we made a most careful examination of our little prisoner, but were unable to find the slightest trace of shot marks on either plumage or body, and finally concluded that he had been only stunned by the report of the heavily loaded gun, the contents of which had passed safely above him.

We placed him in a large granary, that was lighted only by one small window, and allowed him to come and go at will among the bins that were plentifully stocked with mice. Here he lived for several weeks, apparently well pleased with his new mode of life. He chose a certain place in one corner of the granary, to which he always retired, and remained throughout the day, but on the approach of twilight he would sally out on his search for game. During the time he was confined in the room, I never knew him to eat anything aside from what he captured himself, although bits of fresh meat were furnished him every morning. He seemed to delight in sitting on the floor of the bins, and watching the holes through which the mice would pass from one bin to another. When disturbed he would resort to his favorite place in the corner of the granary, and there remain stamping his feet, snapping his beak, and presenting the most perfect picture of uncontrollable anger.

He would after a few days allow me to rub the top of his head with my finger, but would never permit any further attempt at familiarity.

One morning in October, I fastened a strong cord to one leg and tied him to the limb of a tree in the orchard, giving him plenty of cord to reach the ground at pleasure. About nine o'clock the following evening, having occasion to pass through the orchard, I discovered a second Owl sitting on a dead limb that projected above the top of an adjacent tree, and immediately returned for a gun, but on returning a few minutes later the visitor had flown. I waited quite a long time for him to return, but finally concluded he had left the vicinity for good. I visited my captive, who was busily engaged in making a supper of some

fresh meat I had provided for him, and returned to the house. The next morning what was my surprise, on going to the orchard, to find my pet lying on the ground under the tree, dead, and with the scalp completely torn off his head. He must have been killed very soon after I left him the previous evening, as he still retained in his beak a small piece of the meat he was eating when I made my evening call. The cause of his death is still as great a mystery to me as ever, although I have always believed it was caused by his own relatives.

When I reported the death of the Owl to my friends they immediately suggested "the cat" as the culprit, but, in my experience, I have never yet seen a cat that showed any disposition to interfere in the slightest with any member of the Owl family. And besides, as the bird was eight or ten feet from the ground, it was practically out of the way of those prowling marauders. It is a well known fact that several species of birds will torment and sometimes kill their maimed or feeble fellows, and who shall say that this also may not be one of the characteristics of the great family of the Raptores.

Notes on Birds of the Sea Islands.

BY WALTER HOXIE, FROGMORE, SO. CAR.—PART IV.

The Kingbird, (304,) is a very common Summer resident.

The Grey Kingbird, (303,) has been taken once on Ladies' Island in May, 1868.

The Great-crested Flycatcher, (312,) common Summer resident.

The Pewee, (315,) common in Winter.

The Wood Pewee, (320,) rare in the migrations.

My record of the Flycatchers is very imperfect, but a friend informs me of the occurrence here of Trail's Flycatcher, (325*a*.)

The Least Flycatcher, (326,) Small Green-crested (324,) and Yellow-bellied, (322.) I have never identified the last four. Others might perhaps be added to the list but I have an innate prejudice against shooting Flycatchers.

The Chuck Will's-widow, (353,) very common.

The Whip-poor-will, (354,) I have only taken once in March.

The Night Hawk, (357,) common.

The King Fisher, (382,) rather common and occasionally breeds.

The Yellow-billed Cuckoo, (387,) is common in the Spring but rare in the Fall.

The Black-billed Cuckoo, (388,) common both Spring and Fall. A few breed. This seems to be the stronger bird of the two, with a more southern breeding range.

The Hairy Woodpecker, (360,) rare.

The Downy Woodpecker, (361,) common.

The Red Cockaded Woodpecker, (362,) quite rare.

The Pileated Woodpecker, (371,) very common.

The Yellow-bellied Woodpecker, (369,) not uncommon.

The Red-bellied Woodpecker, (372,) very common.

The Red-headed Woodpecker, (375,) rather common.

The Golden-Winged Woodpecker, (378,) common in Winter but only occasional in Summer.

In former years the Ivory-billed Woodpecker was not rare in this locality, and I have taken it on Johnson's, Pritchard's and Edding Islands. Of late, however, I have failed to detect it.

The Ruby-throated Humming-bird, (335,) common Summer resident.

The Chimney Swift, (351,) common Summer visitor.

The Screech Owl, (402,) is common and breeds. Called "Death Owl," and its note is supposed to betoken the decease of some near relative.

The Barred Owl, (397,) quite common and breeds. Called Coo Coo and Tugadoo, both names no doubt descriptive of its notes.

The Barn Owl, (394,) not uncommon and breeds.

I am quite certain that I have heard the note of the Saw-whet Owl, (401,) on Edding Island.

I am also credibly informed of the occurrence on St. Helena of the Great Horned Owl, (405,) the Long-eared Owl, (395,) and the Short-eared Owl, (396.) The Snowy Owl has also been known to wander as far south in very severe Winters.

The Pigeon Hawk, (417,) rare. Have not seen more than half a dozen since 1867. Usually in Spring.

The Sparrow Hawk, (420,) breeds but is never common until Winter when they are numerous, pursuing the flocks of Sparrows and other small Winter visitants.

I have been informed by good observers of the occurrence here of the Swallow-tailed Hawk, (426,) the White-tailed Hawk, (427,) and the Mississippi Kite, (428,) but I have never taken or fully identified any of them.

The Marsh Hawk, (430,) is rather common in Winter.

The Cooper's Hawk, (431,) and Sharp Shinned Hawk, (432,) neither is rare, but I have never detected them during the breeding season.

The Red-tailed Hawk, (436,) and Red-shouldered Hawk, (439,) rather common residents.

The Bald Eagle, (451,) and the Fish Hawk, (425,) are both common residents. Their nests are a feature in the landscape of all the wilder island

and the Fish Hawk breeds on St. Helena. I have often heard the natives tell of the "Eagle's Stone" which is said to be in every nest and to bring special good luck to the finder. I once shot into a nest thinking the old bird was sitting, and to my astonishment down dropped a smooth quartz pebble such as "never grows" in this locality. I have it yet, but my wonderful luck is yet to come.

The Turkey Buzzard, (454.) common resident. Breeds in communities often with the next.

The Black Vulture, (455.) more common than the above. Breeds in communities and sometimes singly. The locality is usually a small, secluded islet. Eggs almost invariably two. Have once known a set of three taken. The pair usually vary as in Brewer's two figures. I once raised a pair of young Vultures from the same nest, which on dissection proved to be male and female. Query—Are the two eggs always one male and the other female? I have never seen their eggs deposited in any way except on the ground without any attempt at a nest. Have never taken any from a hollow stump or from any elevated tussock, but always on a level spot. But they are often well hidden by overhanging Yucca or brambles, and always difficult to see in the half light among the bushes. The old birds approach them by a zig-zag path, which is sometimes so apparent that I have often discovered the eggs by following it. Sometimes I have smelt them out.

The Carolina Dove, (460.) common resident.

The Ground Dove, (465.) very common. Nests in the cotton fields. Called Mourning Dove by the natives who used to have a superstition that any one who molested their nest would be "inmourned to death" by the grief-stricken owners.

The Quail, (480.) is very common.

The Wild Turkey, (470a.) used to be found on Ladies Island. I have not known of any, however, since 1869. I am told that they have not yet been exterminated in the more retired parts of Port Royal Island.

Brief Notes.

WINTER BIRDS OF SOUTHWESTERN VERMONT, FOR 1885.—Pileated Woodpecker, Hairy Woodpecker, Downy Woodpecker, Crow, Blue Jay, Black-capped Chickadee, White-bellied Nuthatch, Chipping Sparrow, Snow Bunting, Pine Grosbeak, Great Northern Shrike, Screech Owl, Ruffed Grouse, Merganser, Golden-eye Garrot. Also, February 28th, saw four Horned Larks, which are the first birds observed, that are not Winter residents. There has been a noticeable absence of the Snow Bunting, Black-capped Chickadee, Pine Grosbeak here this Winter.

I have not observed a single specimen of the Golden and Ruby-crowned Kinglet this Winter; last Winter I found several of each.

Of Pine Grosbeaks, I observed but a few in the first part of the Winter, and for some time back have not found a single bird. I have not found a specimen of Cross-bills.

Can some of the readers of the "O. and O.," explain why there are so few male birds of the Merganser, or is it because I have not had the good luck to find them. I have shot quite a number of the females, Winters back, but have not found or observed a male bird till this Winter, I shot a fine male specimen on the 28th of February last, it was in company with one other male and two females. There are quite a number of female Mergansers here every Winter in the river, to the grief of the small fish and trout. One specimen I shot two years ago, had a trout minus head, that was seven inches long. Since that I have not spared the Mergansers.—A. I. Johnson, Hydeville, Vt.

PECULIAR EGGS OF THE KINGBIRD.—I have just come into possession of a set of eggs of the Kingbird (*Tyrannus carolinensis*), which present very curious markings. They were collected in 1882, in the town of Braintree, Mass. The nest was in a tree overhanging a mill pond. Eggs, 4; fresh, with the following markings:

No. 1. Normal in ground color and markings, spots being at large end, forming a sort of wreath. Size .92x.69 of an inch.

No. 2. Much like No. 1, but the spots are larger and fewer, with one faint blotch or stain. Size .87x.75 of an inch.

No. 3. Has no distinct large spots, but is thickly stained with a reddish lilac; at the large end the stains form a blotch. Size .97x.62 inches.

No. 4. Has no large spots or stains, but is faintly and finely stained all over. Size 1.00x.75 of an inch.

These eggs are now in my collection at 73 Hanover street, where I should be pleased to show them to any visitor.—Frank A. Bates, Boston.

A FEW NOTES FROM IOWA CITY, IA.—On February 13th, my brother shot a Cardinal Redbird, which is the second or third one known to have been shot in this section of country. On February 21st, a friend of mine shot a Yellow Shafted Flicker which, although common in Summer, is the only one I ever saw in Winter around here. Last June I found a Maryland Yellow-throat's nest with three Cowbird's eggs in and none of its own, the eggs were all partly incubated. On May 29th, 1884, I found a nest of King Rail containing twelve eggs, some of which were nearly ready to hatch and one or two that were perfectly fresh. On the same day I flushed a Virginia Rail from her nest in a clump of weeds in a swamp, and got eight eggs which were all fresh. On May 3d, flushed a Ruffed Grouse from her nest and obtained a set of fifteen fine fresh eggs.—Oscar C. Clute.

NOTES FROM NORTH CAROLINA. PURPLE GALLINULE.—In your February number I made a mistake in stating that a specimen of this bird was procured at New Berne in December; it was a young Florida Gallinule and was wrongly identified.

RED-BELLIED NUTHATCH.—On Feb. 28th, I was walking without my gun through some Pine woods, when I heard a bird note which seemed unfamiliar to me; on looking around for the cause thereof, a small bird flew up from among the Pine straw and settling on the trunk of a young Pine commenced running up it. I recognized the bird as a Nuthatch, and was turning away, thinking it the White-bellied, when I was struck by something unfamiliar in its appearance, and on looking more closely, perceived the black bar from its bill along the side of its head, and the white superciliary stripe above it, which distinguish this species from the White-bellied Nuthatch. This is the first time I have observed this species in the State.

Five days afterwards whilst out collecting with my gun, I came upon this species again and procured a specimen, only about fifteen yards from the place where I had observed it before. In both cases there was another bird with it, but I could not be certain whether that was a Red-bellied Nuthatch or not.

WHITE-THROATED SPARROW.—An Albino of this species was lately shot in the woods near here. It was pure white, tail and wings having some little brown on them, otherwise unmarked.—*H. H. & C. S. Brimley, Raleigh, N. C.*

GREAT-HORNED OWL'S EGGS.—Another visit to the Great-horned Owl's nest, March 1, 1835, favored us with two eggs. The nest was found in the first tree that we rapped and we had a splendid shot at the female, and afterwards saw the male and female together. The nest was about seventy-five feet up and lined with snow and feathers. The eggs were of a dirty white color, and slightly incubated.—*S. W. Comstock, Greenfield, Mass.*

THE ROSE-BREADED GROSBEAK is a voracious feeder on the potato bug, the advent of which (in 1867,) seems to have largely increased its numbers in this vicinity. Previous to 1871, I considered the Grosbeak a rare bird, but in that year it was tolerably common, especially about village gardens, where I first noticed it feeding freely upon the larvæ of the pest mentioned. Since then I find this beautiful songster more and more frequently mentioned in my notes, and July 8th, 1883, a record of twenty-two seen in a walk of four miles. It arrives here almost invariably within the first ten days of May, my earliest record being April 30th, and my experience has been that the males precede the females a few days. I have taken a set of eggs with incubation well advanced on June 3d. Early in August last year the young were very numerous, and gorging themselves on the Marrowfat pea. As late as September 4th, they were still with us and very fond of sunflower seeds. It is worthy of note that with the increase of the Grosbeak there has been a marked decrease of the potato bug, though I would not, of course, attribute it wholly to this cause.—*E. M. Hancock, Waukon, Iowa.*

HOUSE WRENS REARED BY ROBINS.—On June 11th, 1894, I found a Robin's nest in an Apple tree. On gaining the nest I saw five little heads sticking up, the possessors of two of which were Robins, but the other three, which were not half as large as the Robins, I did not recognize. There was also a Robin's egg in the nest.

I visited it again two days afterwards, when the remaining egg was hatched, making six young ones—quite a nest full. By the 15th the three Robins had grown so much that one of the House Wrens (for such they proved to be), had died. On the 20th, I found one of the Wrens had left the nest, and the other was perched on the edge preparatory to leaving. This one I caught and examined closely, making sure that it was a House Wren. Is it common for House Wrens to deposit their eggs in other birds' nests?—*Geo. H. Center, Staunton, Ill.*

HUDSONIAN TITMOUSE IN MASSACHUSETTS.—Mr. Ralph A. Quimby of Boston had the good fortune to secure a specimen of the Hudsonian Titmouse, (*Parus hudsonicus*), while collecting in Quincy, Mass., March 14th. It was with the Common Black-capped.

CORRESPONDENCE.

WHAT IS THE BEST ABSORBENT?—*A. Gardner Payne, New York*, says "Plaster of Paris answers very well for birds of white plumage, but seems to bleach all dark coloring, especially black." If our correspondent would try corn meal, he might avoid the trouble named, though it is not so good an absorbent as Plaster of Paris. Perhaps some of our readers may offer suggestions.

Will some of the readers of the O. and O., please tell us something of the habits of bats?—*W. L. H., Otisfield, Me.*

RECEIVED.—Wisconsin and Michigan Fish and Game Laws from G. W. F. Smith.

We are compelled to postpone until next month, articles in type from C. O. Tracy, Geo. Enty and L. M. B.

Boston.—Review for February and March.

Ruffed Grouse and Quail have disappeared from the market; Pinnated and a few Sharp-tails still remain. Canvas-back and Blue-bill Ducks have succeeded Mallards and an occasional Eider and Swan breaks the monotony. Wild Pigeons in small lots that appear to have been shipped a long distance are noticed. The severe weather has been more effectual than the remarkable game law, in keeping the local gunners at bay. While making our usual rounds last week we secured a Quail, which as it stands before us is best described as appearing as if it was just taken from a bath of Plaster of Paris, the brown tint and other markings indistinctly showing through. Whether this bird would have eventually become white or brightened up in the future would be a good subject for a discussion without facts. We now and then get a specimen of the Black-backed Gull, and understand they are frequently seen on our coast, though by no means a common trophy of the shore gunners. Hawk Owls have not entirely left. We have obtained several of the Richardson's, soft, downy little fellows. Of a number of Great Horned Owls, our best specimen is a fit subject for quarantine. We refer to its being scented by a skunk, which it had evidently attacked. Time is a slow remedy. We have one that has been mounted over two years and is still too strong to be admitted to our domicile. We have had many suggestions offered but have tried none. A good receipt would be of interest to all.

The last of February we received some fine Ptarmigans, and expect the last lot of the season this month. Our attention being attracted by the call for eyes for the Acadian Owl, we were led to inquire, and find that a number have been found dead, or exhausted—from here, northwards.

We heard that two Snowy Owls were shot in this State during the Winter. A party in Quebec writes us but one was shot there in the last three Winters.

Oology has taken a stride of late but the older boys had their rarities. A few years since a friend handed us a Goose egg, which in these times would have its advantages. With part of its contents our family of four were supplied with poached egg for breakfast, and with the remainder a custard pie was made which would compare in size with those on the city lunch counters.

The size of the egg was $1\frac{1}{8}$ in large circumference and 9 in small, weight, $1\frac{1}{2}$ oz. We still have the shell. We think no one can beat it. In our next we will challenge in another direction.—*F. B. W.*

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Mississippi Valley Migration.

THE RELATION OF MIGRATION TO BAROMETRIC
PRESSURE AND TEMPERATURE.

BY PROF. W. W. COOKE, MOORHEAD, MINN.

The materials for the present article were obtained principally from the daily weather reports of the Signal Service for 1884. During the Spring migration of that year, I received the full tri-daily reports from all the stations (one hundred and twenty in number,) of the Signal Service in the United States and Canada; of which, about fifty stations are in or near the Mississippi Valley, and their reports were used in making my maps. These reports give the temperature, barometer, dew point, direction and force of the wind, amount of rain-fall, and character of the sky. They are made three times a day, at 7 a. m., 3 p. m., and 11 p. m. In our study, the 11 p. m., records were used for those birds which migrate by night, and the 7 a. m., for such species as Ducks and Geese, which perform the bulk of their movements in the forenoon.

To render the study more easy, weather maps were made, one for each day, based on the 11 p. m., observations. The maps were made as nearly as possible like those now printed daily by the Signal Service at Washington, that is, the state of the weather and the direction of the wind are marked at each station on the map in symbols which are plain and easily comprehended, so that the eye can take in at a glance the general state of the weather in the whole Mississippi Valley. At each station is then marked in figures the temperature, barometer and force of the wind. Dotted lines are then drawn, connecting all places having the same temperature, and solid lines connecting places of the same barometric pressure; the former, called isothermal lines, are drawn for every five degrees, while the latter, called isobaric lines are drawn for every tenth of an inch of pressure. The only difference from the Signal Service maps is that the isotherms are drawn

every five degrees, while the Government maps put them ten degrees apart.

Studying these maps, we find that the area of lowest pressure is not always in the same place, but is constantly moving and *always in an easterly direction*. It may be moving northeast, east, or southeast, and rarely north or south, but never northwest, west or southwest. The usual direction is a little south of east. Though it may move north or south for a time, it will surely turn east in the end. It so happens that the low pressure area, which we particularly study at the latter end of this article, moves toward the north-east, but this is not the usual direction. One may ask, what has all this to do with birds? Let us see. We said in the February "O. and O." page 17, that the warm waves began in the north and travelled southward. It might have been a little more exact had we said they begin in the northwest and move toward the southeast, but the cause of this movement lies in the movement of the area of low pressure. It is a law of the movement of the winds, that they go *toward* an area of *low* pressure, and *from* an area of *high* pressure. If then an area of low pressure develops, say in southwestern Dakota, it will be but a few hours before a south or southeast wind will be blowing over Nebraska and Kansas, and a warm wave will be started in those states. As this area passes eastward to Minnesota, its effect will begin to be felt in Iowa, Missouri and Arkansas, while by the time it reaches Lake Michigan, it will probably have produced southeast winds, even to the Gulf of Mexico. But an area of low pressure is immediately followed by one of high pressure, producing an opposite effect, and the isotherms which bent north to welcome the coming of the low area, turn rapidly southward before the icy breath which blows from an area of high pressure. Thus the cold and warm waves both come from the same quarter, and both move in the same direction, that is, the direction in which the area of low pressure is progressing. When we read that low pressure is generally accompanied by clouds

and rain, while areas of high pressure are cloudless, we would naturally suppose that migration would take place during high pressure, but as has already been said, the area of low pressure attracts a south wind and the increased warmth more than overbalances the cloudiness. Of all the migration of last Spring, it seems probable that fully sixty per cent took place in cloudy weather. It is also probable, though I am not aware that it has as yet been proved, that in *Fall* migration, these conditions are reversed and the larger part takes place in clear weather.

For the purpose of putting the notes on record that others may compare them with their own observations, we will give the full record for the seven days from March 19th to 25th, 1884, though we are aware that it will be uninteresting and tedious to the general reader, who can stop at this point.

March 18th, 1884, at 11 p. m., there was no marked atmospheric disturbance throughout the United States, the minimum of the cold wave had occurred the day before, and the temperature was gradually rising in the Upper Mississippi Valley. It is this part of the Mississippi Valley, from 39° northward, to which we shall confine our study. The temperature was quite high (50°) at St. Louis, 37° at St. Paul, but fell rapidly from there northwest to 20° at Moorhead. (It need hardly be said that no one can follow the rest of this article satisfactorily, without a map before them.) The barometer varied only two-tenths of an inch, from 29.9 inches in eastern Arkansas and southern Illinois, to 30.1 at Moorhead. Prevailing winds, very light E. to N., cloudy, with several light rains. There was little change toward the morning of March 19th, except the shifting of the wind to N., and N.W., while the area of low pressure moved east to Cape Hatteras. Very little migration took place, the few birds which did move belonging exclusively to those which we have marked in a former article, "the birds of the first wave," that is, Ducks, Geese, Blackbirds, Meadow Larks, Robins and Bluebirds. It is these birds with which we have to deal in our study of these seven days. Migration is reported from southern Wisconsin and northern Illinois, against a north-east wind with the temperature but two or three degrees above freezing, and from east central Kansas, under slightly warmer conditions. It would seem likely that some of these notes belong to a warm wave which occurred two days before, but it is also certain that some Ducks and Geese were migrating in the early morning hours straight against the northerly winds.

At 11 p. m., of the 19th, an area of slightly

lower pressure had just passed over the Upper Mississippi Valley and the barometer rose steadily all night. Between St. Paul and St. Louis the temperature remained the same as the day before; northward it was slightly higher. Winds light, and everywhere from N.E., N.W., and W. Temperature from 45° at St. Louis, to 26° at Moorhead. Average barometer at 11 p. m., 30.07, at 7 a. m., of the 20th, 30.15. Cloudy everywhere except in the Lake Superior region. In general, very unfavorable to migration, yet new arrivals are still noted from the same places as on the day previous, with the addition of records from southeastern Dakota, eastern Nebraska and south central Iowa. It would seem that the Ducks and Geese were so desirous of reaching their breeding grounds that they pushed northward, in spite of the wind and the clouds, as soon as the temperature rose two or three degrees above freezing, regardless of the fact that the Winter's snow still covered the ground, the lakes and rivers, still bound with icy chains. Not until a week later did any streams open in the region which was now being invaded by the migratory hosts.

March 21st is marked by very high barometer and quite a marked advance of the isotherm of 30° to points north of Duluth and Moorhead. There was no place in the Upper Mississippi Valley at 11 p. m., March 20th, where the pressure was less than 30.2, and in western Dakota it was 30.3. Calm weather, or very light N. winds prevailed, with clear weather along the Mississippi and the great lakes, and cloudy weather with light rains on the Missouri. Minimum temperature at St. Louis 43°, at LaCrosse 37°, St. Paul 20°, Moorhead 23°. A moderately fair night for migration. It is the culmination of the high pressure, and already in the southern Rocky Mountain region is developing the low pressure which is to bring about the immense movements of the next three days; already the isotherms in that quarter are beginning to move northward, and the wind along the gulf coast has changed to S.E. The birds seem to have a foreknowledge of the approaching change and there are double as many "firsts" recorded as two days before. Some of these come from central Missouri, where the change is already slightly felt. Otherwise they are from the same districts as the day previous. There is practically no advance of the van, but a filling up of the country already traversed by the scouts.

The night of March 21st, at 11 o'clock, an area of low barometer, 29.9 inches, was passing eastward across the Upper Mississippi Valley and was central at North Platte, Neb. It produced S.E., winds of moderate strength in all the

Mississippi Valley except the extreme northern part above LaCrosse. The temperature rose throughout our district to 56° at St. Louis, and 35° at St. Paul, but north of there, beyond the influence of the S.E. wind, fell rapidly to 18° at Moorhead, and 11° at St. Vincent. The isotherm of 40° is carried up to LaCrosse. As morning approached the temperature still rose in the northern part, and the sky became overcast, with some local rain. It was a night of much migration, owing to the influence of the area of low pressure, which at 7 a. m., March 22d, was central at Omaha and Yankton, (29.86 inches). During the next eight hours the pressure fell over the whole of the United States, the central point being still at Yankton, where the barometer at 3 p. m., registered 29.74 inches. Here then was a fall at Yankton of .32 inches during sixteen hours, while the center of the low area moved but a few miles; and the necessary result was a great rise in temperature and consequently great movements among birds. But these movements took place only to the east of the low pressure area; for it is a law of atmospheric circulation, that the winds are attracted from the south, not *directly* toward the centre of the low pressure area, but toward places to the east of it toward which it is moving, while the winds which it attracts from the north, move toward places to the west or behind it. We therefore would look in vain for migration to the south, west or north of Yankton. The whole of the immense movement, which in number of records was as great as the three previous days together, and in number of individuals was many times greater, is to the southeast and east of Yankton. We have said that the S.E., winds prevailed up to LaCrosse, and this place also marks the limit of the night's movement in that direction. A map was made of the migration which took place on this day, and it was found to cover a very nearly circular area, two hundred and fifty miles in diameter, whose center was midway between Keokuk and Davenport. The great number of birds which were migrating during this night may be judged from the fact that at St. Louis, *twenty-six* different species were noted as having arrived or increased. It is well to bear in mind that these birds were all migrating on a rapidly falling barometer, hence in the face of what is usually considered a sign of an approaching storm; and also we may notice that all this great movement did not advance the van, which still remained where it had been before.

March 23d is a standstill. The area of low pressure which was central at Yankton in the afternoon of the 22d, had, by 11 p. m., moved to St. Paul, the barometer falling steadily to 29.61

inches; during the night it moved N.E., to Marquette, Mich., falling still more to 29.56 inches. In the meantime an area of high pressure developed at Dodge City, Kans. The effect on the winds was as follows: From St. Louis southward the winds began to shift to S.W.; to the northwest of that place they shifted to W., and still farther north they became N.W., and N.; while to the northeast of St. Louis they shifted to S.W., and W. As would be expected, those places that had W., and N.W., winds had clear skies, while the district from St. Paul and LaCrosse to Chicago and eastward was cloudy. Temperature from St. Paul north, northwest and northeast, rose; at St. Paul it was stationary, and thence southward fell a few degrees, but still remained warm. The wave of migration seems to have exhausted itself in a single night. Some forty "firsts" are recorded for this day, but except at two places they seem to have been arrivals of the previous day which had been overlooked. The two places, Waupaca, Wis., and Heron Lake, Minn., with its neighborhood, furnish one-half of the forty records, and are both on the northern edge of the district covered by the preceding night's migration. It seems, then, that at these places there was a local, though in the case of Heron Lake, a very large migration.

March 24th is marked by cloudy weather after a clear night. Southerly winds prevail over the Upper Mississippi Valley, varying from S.E., to S.W., and mostly light. The temperature has fallen on an average 5° from Chicago to Bismarek and northward. It has risen strongly, 9° to 11°, at Yankton and Omaha, this rise being probably the cause of the arrival of immense numbers of water fowl during the day, at Heron Lake, Minn., all coming from the west, that is from the direction of Yankton, at which place the wind was S., at 7 a. m. It is a day of general low pressure: the whole of the district from Cairo to Moorhead is included between 29.80 and 29.89. Northward the barometer falls to 29.65 at Manitoba; eastward to the same at Marquette, Mich.; southwest to 29.71 at Fort Smith, and westward rises to 30.00 at Deadwood. An area of low pressure developed at Fort Smith, Ark., in the early evening of March 23d, and becomes pronounced during the next twenty-four hours. At 7 a. m. to-day, the effect of this area is still hardly felt, but by night the wind has been attracted to it over most of the Upper Mississippi Valley, bringing with it from the north, colder, clearer weather. This day, then, is the turning day and the beginning of a cold wave which is already felt at the northwestward of Cheyenne. Tem-

perature at 11 p. m., March 24th, is 47° at St. Louis, 42° at Chicago, 50° at Des Moines, 37° at St. Paul, and 32° at Moorhead.

This is the last day of the warm wave which commenced on the evening of the 21st, and the birds make the most of their opportunity and advance a whole degree farther north. The hosts which had rested during the night of the 22d, again moved forward and fully occupy all the country up to 45°, with an innumerable host along the Mississippi River at 45²⁵, and scouts up even to 47° on the Missouri.

That this is the culmination is easily seen by the records, which fall from seventy-three notes on the 24th, to but seventeen the next day.

Let us now calculate the average conditions under which the birds were migrating during these seven days. There were a little over three hundred records of "firsts" contributed for these seven days, and the temperature at which they were migrating is found to be as follows: 25°, one record, (a Goose—in more senses than one); 29°, a cousin to the last; 31°, 18 firsts; 33°, 12; 35°, 11; 37°, 40; 39°, 41; 41°, 52; 43°, 16; 45°, 25; 47°, 5; 49°, 17; 51°, 9. It will thus be seen that 37° to 41° are the favorite temperatures of "birds of the first wave" for migration. In cloudy weather 143 records; in clear weather 101, or exactly 60 per cent. cloudy, to 40 per cent. clear.

With reference to the wind, we find that with the wind N., there were 29 records; N.E., 31 records; E., 12; S.E., 75; S., 23; S.W., 27; W., 39; and N.W., 9. It will be noticed that the most unfavorable winds, the E., and N.W., are directly opposite those winds which have the greatest number of records. Combining, we have for E., and W., 51 records; for N.W., N., and N.E., 69; and for S.E., S., and S.W., 125 records, showing how greatly the birds prefer a southerly wind to help them on their journey.

As regards barometric pressure, we find that on March 19th, there were 24 records with an average pressure of 30.00 inches; March 20th, 35 records at 30.04 inches; the 21st, 43 records at 30.24 inches; the 22d, 82 records at 30.15 inches; the 23d, 45 records at 29.80 inches; the 24th, 73 records at 29.85 inches; and the 25th, 17 records at 29.86 inches. These make an average of exactly 30.00 inches or the normal pressure, but it must be remembered that the great wave of the 22d began when the pressure was very high and took place on a falling barometer. It is probable that a large number of observations taken throughout the season would give from 29.93 to 29.97 as the average pressure at which the birds migrate.

A Catalogue of the Birds of Kalamazoo County, Michigan.

BY DR. MORRIS GIBBS.—PART IV.

64. [135.] *Vireosylva olivacea* (Linn.) Bonap. Red-eyed Vireo. Our most abundant species of the greenlets. Well known to nearly all collectors, and readily recognized from its beautiful and almost constant song. Arrives from April 25th to May 11th, according to the advancement of the season. This Vireo, like all the others, being influenced to a great extent by the weather, rarely comes north until the budding of the trees actually proves that Spring has come to stay. The Red-eye usually appears in early May, and soon makes his presence known by his agreeable warblings. The birds nest abundantly with us, the eggs usually being laid by May 25th. Some seasons the first eggs are laid earlier than this; again, not until June has come. The birds sing joyously nearly all summer, and are the life of the woods in the sultry days of late summer. Cannot say just when the Vireos leave us for the south, but have found them quite scarce after September 1st.

65. [138.] *Vireosylva philadelphia*. Cass. Philadelphia or Brotherly-love Vireo. I think that but a single specimen has thus far been taken in this county. The date was May 23, 1882. It may be considered a rare species with us. The song of this little bird I have never heard.

66. [139.] *Vireosylva gilva* (Vieill.) Cass. Warbling Vireo. A common and well known species. A favorite with all. Nests in city and country. A rare singer, whose liquid melody of song gushes forth in ecstatic warblings of the finest blended notes imaginable. One who hears the song of the Warbling Vireo will ever remember it, if he has an ear for harmony and a love for birds. I think if I were to be deprived of the blessed privilege of watching the movements of the happy birds, and listening to their carols for a period of fifty years, that I could readily detect the song of this rare warbler among a thousand silver-tongued performers from all parts of the globe, at once on hearing it sing. And if confined in some dismal cell, like the Prisoner of Chillon, I would anxiously await the return of the bird to sing at my grated window. And the joyous Warbling Vireo would be my choice of all the birds.

To describe the song of the Warbling Vireo would indeed be a difficult task, and were it ever so well accomplished, the notes as described on paper would give, but poorly at best, an idea of the spirit of the song. A description of birds' songs is a matter on which but little has been

written comparatively, and though great interest has of late been manifested on the subject, little has as yet been accomplished. The older writers on ornithology were, perhaps, better versed in our bird language than the more recent authors, and the descriptions, particularly those of Nuttall, are frequently excellent, but the full series of songs and call notes of a bird, and every species has a variety—have never been described in detail.

The Warbling Vireo arrives from the 27th of April to the 8th of May. About the middle of the latter month the birds usually seek for a location for the nest. A nest was begun on the 12th of the month one season, but such an early effort is unusual. The birds depart for the south during the last part of September.

67. [140.] *Lanius flavifrons* (Vieill.) Baird. Yellow-throated Vireo. A common Summer resident. Arrives from April 25th to May 8th, and becomes common and tuneful soon after the first appearance. Breeds plentifully, but the nests are very rarely found with us. The notes of the Yellow-throat are very penetrating and can be heard at quite a distance. I have heard the song over a half mile away on a quiet Summer day. The modulation of the song is not by any means equal to the beautiful notes of the Red-eye and Warbling, but is cheerful, and possesses that degree of vivacity common to all the Vireos' songs, which is so inspiring to the stroller. The only nests which I have met with were placed at an elevation of not more than ten feet above the ground, and were situated at the forked extremities of lower limbs. The nests are, however, often built well up in trees. They are very neatly arranged structures and are surpassed in elegance of workmanship by very few nests known to me. The outside is covered with lichens of various colors, the exterior presenting a very neat appearance. The birds disappear in late September or early October.

68. [141.] *Lanius solitarius* (Vieill.) Baird. Blue-headed or Solitary Vireo. Never a common species with us. If a collector secures one specimen each migration he is doing remarkably well. I have not met with a dozen specimens during the past seventeen years in which I have been taking notes. The Blue-head is only a transient with us, and is found the second and third weeks in May, as a rule. It occasionally appears by the 5th of the month. It is not recorded later than the 20th of May with us. I have yet to meet with two specimens in the same woods at one time. The species may be social in its breeding haunts, but during migrations, so far as my limited observations extend, it is pre-eminently solitary.

69. [148.] *Lanius borealis* (Vieill.) Great Northern Shrike. An irregular transient, generally appearing from the north in November, and returning north through our county in March. Occasionally seen throughout the winter singly or in pairs. Quite common some seasons; again rare for two or three successive years. Have met with this Shrike in November, December, January, February, March and April. Never seen here in Summer, and only rarely after April 1st. It gives way to the more southern species, *Lanius ludovicianus excubitorides*, which appears in March or late February.

In looking over a copy of the "O. and O." of issue January, 1885, I find that Dr. Atkins embraces the Great Northern Shrike in his list of the birds of Locke, Michigan, as a Summer bird. He, however, fails to embrace the White-rumped or Loggerhead in his list. There must be a mistake somewhere, for I am sure that the White-rump is common as far north as 43° north latitude, while the Great Northern is not embraced by any reliable collector in the State as a Summer resident. If this point could be definitely settled I would be greatly pleased, and trust that the collectors of the State will give their experience with this species.

70. [149.] *Lanius ludovicianus*. Σ Linn. Loggerhead Shrike. For years I confounded this species with the next form, and have only within the last few years extricated myself from such a surprising and disagreeable dilemma. I cheerfully make this acknowledgement of my error, because it may be that some reader of the "O. and O." with whom I have corresponded will call to mind remarks I made some years ago relative to members of this genus, in which I was undoubtedly wrong. After a careful study of the Shrikes I am convinced that this species is rare with us as compared to the White-rump, and may be considered as scarce in the State. The data that I have are still too meagre for publication.

71. [149a.] *Lanius ludovicianus excubitorides* (Sw.) Cones. White-rumped Shrike. Very common in Kalamazoo County, for at least seven months of the year. White-rump arrives about the middle of March, as a rule. In advanced seasons he appears sometimes in the last week of February, and again not till the last week of March. The eggs are usually found in complete sets during the last week in April, occasionally as early as the 18th of the month. The birds do not all leave us until November.

74. [165.] *Hesperiphona vespertina* (Cooper.) Bp. Evening Grosbeak. A rare and very irregular Fall, Winter and Spring visitor. My earliest record for the year is November 25th, while small flocks were seen in 1879 as late as May 1st. The

birds have only appeared in the County two years in my experience. Perhaps they often appear as transients in severe seasons, when they hasten by us and are not seen. I can hardly allow, however, that either this species or the Pine is driven to the south by the severity of the weather. For if this is a fact, it would be reasonable to expect other northern birds in numbers during the same cold weather, a conclusion which is quite at variance with my observations on our Winter visitors. During the years that the Evening Grosbeak appeared, there was nothing to indicate that the Pine Grosbeaks were driven south by the cold weather. In fact, no specimens of *enucleator* had been seen for the past four seasons, nor since then, now ten years. Neither has it been proven that Snowy Owls, Bohemian Wax-wings or other rare stragglers are more abundant during the season when some other Winter visitors appear as common.

It may be maintained that the scarcity of food is the prime cause of the movements of these northern forms. Such a conclusion is even less tenable than the view of those advancing severity of the weather as the chief reason. If scarcity of food caused the birds to seek more southern sections, we might reasonably infer that the Pine and Evening Grosbeaks would appear simultaneously, as the habits of the two are similar, both feeding on the same varieties of berries and buds while here. This is shown not to be the case. Again, what reason is there to prove that the Hawk Owl, Snowy Owl and Gyrfalcon, which are seen in our southern counties during different Winters, are driven here by scarcity of food? We must feel satisfied that the same amount of animal food is found in the north as in other Winters, if it were not so, a replenishing of the country occupied by the carnivorous birds could not possibly take place within one year, and from necessity they would appear the following season, a point which is not substantiated.

It is also reasonable to conclude that in case of scarcity of food the birds would visit other sections where the trees from which they feed, or the small mammals and birds on which they feed, were found, and not to more southern haunts where a change of faunæ and floræ would occur. In this light we might with equal propriety conclude that the Owls would seek more northern quarters, or at least localities situated within isothermal boundaries. As a very conclusive proof that the scarcity of food theory is not firmly founded, I might call to the minds of the readers of the "O. and O." a certain work on arctic explorations—reference not now at hand—in which Snowy Owls are recorded repeatedly during the sojourn of a party in the extreme north, and at a time

when the most rigorous weather prevailed, while at the same time the reported presence of Snowy Owls within not only the U. S., but in Michigan was heralded in daily papers as a conclusive proof of the severe weather throughout the country.

I have diverged from my regular routine in order to discuss this much talked of and less understood subject, and trust that in so doing some readers may be interested to the extent of carefully noting the appearances of our northern visitors with careful remarks on correlative condition of weather, food, &c. The subject of migration is so little understood, that, notwithstanding the great strides towards the elucidation of the main points in the last few years, there still is a wide field open to the close observer. At present we are fairly acquainted with the migrations of those species which come to us in the Spring and return to the south in the Fall, but in the rarer species constant variations are recorded by various observers in different parts of the country. These apparent variations are to my mind entirely due to the fact that the birds are little known, and therefore not accurately recorded, and it is my opinion founded entirely on theory and my own observations, that the irregular migrations of many northern birds are generally seasonal, and not in any wise due to either severity of the weather or scarcity of food.

The fact that many species leave us for the south every Autumn is not by any means a necessary result of our rigorous Winters. On the contrary, comparatively few of our Summer birds would have to go south from inability to withstand our severe weather. A good illustration of the ability of a more southern bird to live in our climate during the Winter months, was furnished a few seasons ago when an escaped Redbird, (*C. virginianus*), was found to live with apparent comfort throughout a severe Winter. It sang cheerily and fed on the buds and seeds as if born in the grove of evergreens which it selected for its northern home. No instance of a capture of a wild Cardinal Grosbeak in our county has ever taken place.

We think that migrations occur each year among the northern birds, and that various localities are visited different seasons. It is probably as fair to credit the Northern Grosbeaks, Redpolls, Snow Buntings and Owls with seasonal migrations as it is to admit of the uncertain changes of the erratic Red-bellied Nuthatch, Robin and many others. It is reasonable to suppose that the Evening Grosbeak is a common bird at least, half the Winters, on the northern borders of Lake Superior, while it is a rare visitor to our southern counties, simply because it is a species of the extreme north, and not in the habit of migrating south of 45° north lat.

Swallows.

BY C. O. TRACY, TAFTSVILLE, VT.

Their wide distribution, insectivorous and social habits, and graceful flight, make the swallows general favorites. The following species occur at this place:

BARN SWALLOW, (*Hirundo erythrogastra*). Abundant Summer resident. Arrives from April 25th to May 4th. Breeds, making its nest against rafters in barns and other outbuildings. Among our birds no species occupy a stronger place in my admiration than the Barn Swallow. Long before tastes which developed later had manifested an existence, the "Fork-tailed Swallow" was a well known object to my youthful eye. Later in life as I drove the mowing machine and hay tdder, scores of them were my companions, circling about me hour after hour, catching with an ease and precision that ever called forth my deepest admiration, the countless insects which the machine disturbed from their retreat in the grass. Another feature of this swallow which always pleased me was their promptness in the field upon such occasions. No waiting for them until the work was half completed, they were there at the start be it morning, noon, or evening, and often have they followed me until darkness closed around us. Once I saw a man set his dog upon a neighbor's hens that had gone upon his newly sown grain field. One was soon nearly stripped of her feathers, when almost instantly a colony of Barn Swallows which were repairing their previously occupied nests in an old barn one-fourth of a mile away, appeared on the scene and in a wonderfully short time carried the feathers to their nests.

CLIFF SWALLOW, (*Petrochelidon lunifrons*). Abundant Summer resident. Arrives from May 3 to 8. Breeds, nests beneath the eaves of barns. It is no uncommon thing to see a hundred or more of the gourd-shaped mud nests of this species beneath the eaves of one barn. The nests are repaired and used for many years in succession if not disturbed. A few ignorant farmers destroy them as they do not want the Swallows around their barns, but usually they are protected. This species associates closely with the preceding, being equally industrious and social, and much more abundant. For a few weeks before their departure for the South, large numbers of Barn and Cliff Swallows frequently alight upon the telegraph and telephone wires, especially during damp and rainy weather, hundreds of them often being on the wire at once.

BANK SWALLOW, (*Cotile riparia*). Abundant Summer resident. Arrives from May 5 to 10. Breeds, often in large colonies along the streams, where they make an excavation, two or three feet horizontally into the sandy bank. A few dry grasses and feathers constitute the nest. This species is often seen with the two preceding, but does not, like them, seek the company of man.

WHITE-BELLIED SWALLOW, (*Tachycineta bicolor*). Rare Summer resident. Arrives the last of April. Breeds, nesting in holes in trees.

PURPLE MARTIN, (*Progne subis*). Rare Summer resident, quite local. Arrives May 1 to 8. Breeds, nesting in boxes made for their use.

In connection with the Swallows may be mentioned the

CHIMNEY SWIFT, (*Chatura pelagica*). Abundant Summer resident. Arrives May 1 to 8. Breeds, nests in chimneys. The nest is a curious affair made of twigs cemented together with saliva, by which it is also attached to the chimney. A very active and industrious species, destroying large numbers of insects, and easily distinguished from the other Swallows by its sooty-brown color, short tail, short quick stroke of the wings, and rapid flight. In March, 1884, fire consumed a dwelling house near here in which was a chimney that had been occupied for many years during the breeding season by several pairs of Swifts. Before their return that season, a new house with an entirely different arrangement of chimneys had been erected in place of the one burned. June 12, I was upon the roof of the new house and was much interested in the movements of about a hundred Swifts which were in the vicinity. Almost continuously a few of them would fly about the chimneys giving them a critical examination, then favoring me with an equally close inspection, fly away. These peculiar movements were continued for about one-half hour, when the entire flock passed out of sight. Returning again in two hours they repeated their previous actions.

In the town of Woodstock is a woolen mill which has been idle for several years. Connected with the mill is an immense chimney in which countless numbers of Swifts find a home during their sojourn here, and rear their young. Good judges say there are thousands of them. This number does not seem to me an exaggeration, for I have seen them when they, literally, poured out, and again poured in, fairly making a cloud about the top of the chimney. It was a most interesting sight.

By the last week in August, the Swifts, and different species of Swallows, have departed for the South.

THE ORNITHOLOGIST

—AND—

OÖLOGIST.

A MONTHLY MAGAZINE OF

NATURAL HISTORY,

ESPECIALLY DEVOTED TO THE STUDY OF

BIRDS,

THEIR NESTS AND EGGS.

DESIGNED AS A MEANS FOR THE INTERCHANGE OF NOTES
AND OBSERVATIONS ON BIRD LIFE.

FRANK B. WEBSTER, Publisher,

PAWTUCKET, R. I.

Editor's Notes.

Since our last issue, a very marked change has come over our local bird-life. The unseasonable warmth of the third week of April, has gone very far to neutralize the ungenial weather which preceded it. Our early bird visitors are here in full force and activity, and nesting is proceeding with energy. Our reports from various quarters are beginning to show that the bird season has really opened. All concerned—birds, vegetation and observers—seem anxious to make up for the delayed Springtime by unusually hard work.

The Council of the American Ornithologists' Union has secured from Congress a grant of \$5,000, for the purpose of carrying out their plans for more efficient observations on bird migration. This grant will enable the committee to carry out the work of the present year, and assist them in presenting to the public the results of their last year's work. The report of the committee on classification of N. A. birds has been presented to the council.

We recur to the alleged occurrence of Red-winged Blackbird var. *gubernator* in South Carolina, (O. and O., X, p. 40), to say that the specimen, kindly sent us by

Mr. Hoxie, has been submitted to several competent authorities, who have come to the conclusion that the identification cannot be sustained.

Mr. Fred. Corey (Santa Paula, Cal.) sends us a set of three eggs of the Cactus Wren, the identification of which, he says, is undoubted. Instead of being "white, uniformly and minutely dotted with salmon color," (Coues,) they are sprinkled and blotched, thickly at the larger end, with brown and lilac. The three eggs are almost identical in size and marking.

Kansas Birds—Fall Migration.

BY PROF. D. E. LANTZ, MANHATTAN, KANSAS.

Observations in the field during the months of September, October and November of the past two years, convince me that many of our birds do not follow the same route in migrating southward that they do in going north in Springtime. It will be conceded by all western observers that fewer transient species are seen in the Fall than in the Spring. This can only be explained on the theory that they go by other routes, or that the movement is by night and made in silence. Among the abundant Spring migrants which have not been seen in the return migration at this point, are the following: Olive-backed Thrush, Blue-gray Gnatcatcher, Black and White Creeper, Tennessee Warbler, Golden-crown Thrush, Grass Finch, Clay-colored Sparrow, Bobolink, Traill's Flycatcher, and many of the Sandpipers. On the other hand, the Ruby-crowned Kinglet, Orange-crowned Warbler, Leconte's Bunting, and a few others are abundant in the Fall, and not found, or rare, in the Spring migration.

The southward movement begins with our resident species early in August. The Vireos, except Bell's; the Wood Thrush, the Scarlet Tanager, nearly all our Warblers, are gone by August 15th. One of the earliest to depart is our abundant Baltimore Oriole. From August 5th to August 23d, not an individual of this species was seen; but, during a cold rain on the latter date, its familiar notes were heard from the dense foliage of a tall Maple. These came from an adult male, which was also seen on the following day.

About September 1st, they became rather common once more, but did not tarry long. September 12th, an adult male was seen, and a last migrant on September 20th. I regard all the Orioles seen

after August 23d, as transient migrants from the north.

The Purple Martins gather in Manhattan in immense flocks during August. The local residents, young and old, are numerous, but their numbers are largely augmented by daily arrivals from the north. Toward the end of the month they become most numerous. Thousands of them occupy a grove of young Maples on the Court House Square, as a "roost," after the manner of Grackles. In the evenings, they alight upon some of the trees in such numbers that the limbs cannot support them, and large numbers are compelled to find less crowded perches near the border of the grove. About September 1st, the adults leave; but large numbers of the young birds remain for a few days longer. They crowd upon the roofs of churches and other large buildings in town, for several days before taking their final flight. The last of this species was seen September 9th.

Another bird which migrates in large flocks is the Western Meadow Lark. A few of these remain with us during our coldest weather; but far the greater number pass southward in large flocks, singing as they go. They fly low, and the flight is not sustained for any great distance. In the Spring they return in the same manner. The song in the Fall is as musical and strong as in the Spring, but fewer individuals join in the singing. September 12th was the height of their southward movement last season.

From September 20th to the 28th, a daily succession of Night Hawks, numbering from two to twenty, was to be seen flying southward in circles, feeding as they went. They were observed mostly in the mornings and evenings.

The Brown Thrush leaves us for the south during the last week of August; but transients from the north were seen as late as September 22d. None of the species were seen between August 28th and September 12th.

October in Kansas is a sort of lengthened Indian Summer, which often extends late into November. The days, warm and dry, are in sharp contrast with the cool nights. The fields gradually take on a brown color, relieved here and there by the brilliant scarlet of the Sumac leaves. The woods, on account of the dry, hot days, usually lack the bright colors of eastern forests; but if there have been rains followed by frosts, the Rambler in the woods finds no lack of brilliancy. Such was the character of last October. The Virginia Creeper, (*Ampelopsis quinquefolia*), clinging to many a tree rivalled the Rock Maples of the east in gold and crimson hues. The Waahoo

(*Euonymus atropurpureus*), with its crimson fruit, and the bright Sumac leaves contributed to the general effect.

The naturalist who visits field or woods at this season is surprised to find how few the birds are. Nearly all the Summer sojourners have departed. Many of the Winter visitors have not yet arrived. The southward movement seems to be temporarily checked; and the resident birds are silent and have resorted to hidden nooks. Under these circumstances, one feels hardly repaid for devoting much time to observation.

A short walk on a bright morning in early October brought me to the outskirts of a thicket where I seldom fail to find birds plentiful. The thicket consists chiefly of Dogwoods, (*Cornus paniculata*), with Sumac bushes and Wild Grape vines. A half hour's search here revealed nothing more than a trio of Mourning Doves. But in the open field beyond, I found in a clump of small Elms, a few Ruby-crowned Kinglets and an Orange-crowned Warbler, while a flock of Ducks in the distance showed that migration was really in progress.

The following days turned warmer, and Ducks, Bronzed Grackles, Cowbirds, Red-shafted Flickers, and Yellow-rump Warblers became plentiful. About the middle of the month the migrants came in greater numbers. White-crowned Sparrows, Lincoln's Finch, White-throated Sparrows, Song Sparrows, Black and Oregon Snowbirds became plentiful by the 18th. The first Wild Geese came on the 16th. On the 21st, the Arctic Towhees and Fox-colored Sparrows were here in large numbers. Migrating Robins appeared in flocks on the 23d. On the 30th of October the Tree Sparrow and Harris' Finch were present in large numbers. The Fox Sparrow, Field Sparrow, Song Sparrow, and Lincoln's Finch remained abundant, but the White-crowned Sparrows had all departed and the Intermediate White-crowned Sparrow had taken their places. This form seems more common here than the eastern, and yet it was unknown to our fauna previous to 1884.

Among our October birds, one not seen by the writer in any other month of the year, seems worthy of notice. It is Leconte's Sparrow. This bird was for a long time supposed to be rare in our State; but it certainly is reasonably common in this vicinity. I have never seen it in Spring migration, nor have I actually taken it previous to last season; but its habits are such that I am confident that I have frequently seen it in October. It frequents rough fields near the river, where old grass is abundant.

Notes from Norwich, Conn.

BY J. M. W.

In Noank, in this county, is a stuffed Eider Duck, shot at Groton Long Point, in the Winter of 1884.

A tame crow died in this city lately which deserves an obituary of a word for its linguistic power. When called home from a neighbor's yard, it would say "I won't!" When told not to run away, it would answer, "I will!" More distinctly than most Parrots and Cockatoos, I have heard it repeat twelve or thirteen words, though its vocabulary was said to be much larger.

In a late *Atlantic*, John Burroughs says he finds no mention by bird-writers of the Downy Woodpecker's habit of drilling a Winter home. In the "O. and O." Vol. 8, p. 85 and elsewhere, reference is made to this habit. It has come constantly under my observation since 1875, and as I write House Sparrows are breeding in two holes in Maples, on Franklin and LaFayette streets, which I saw Downies drilling last October—the chips falling on the heads of people passing on the city sidewalks.

Some very queer plans for thinning the ranks of the House Sparrow army of invasion were presented to the committee of the A. O. U., the most Quixotic being recommended by a clergyman, to-wit: the use of fire-engines! Now in Winter when the Sparrows get together in great companies, if park-keepers and policemen were allowed to use double-barreled guns on the close packs, little apprehension need be had over their increase. Failing this or state outlawry, destroy all eggs and young on your own premises. Do not let your bird-boxes remain out all Winter to shelter the pests, but put them up only when White-bellied Swallows, Wrens and Martins appear, so that welcome migrants will not find *P. domesticus* already in possession.

Florida Bird Life.

BY E. M. HASBROUCK, PALATKA, FLA. PART IV.

Some time since, I noticed in the columns of this paper, a request to all those who could give accounts of the habits of the Ground Dove, (*Chamapelia passerina*), to do so. So I will commence with this bird. It is very numerous here, and is to be met with in most of the clearings, groves, gardens, &c., and is even found in the roadways and sidewalks of the suburbs of the town. They are quite tame, and when walking on the ground, will frequently allow a person to approach within a few feet before flying, but

when in a tree, they are very hard and difficult of approach. Of all the places to which they resort, I think that the garden is the most favored. Here they may be found at almost any hour of the day, busily picking up the seeds that fall from the various plants. They keep in companies of from five to a dozen, sometimes more, and when on the ground, and approached gradually, they often huddle together, and utter a queer little chirping of alarm much like a Quail. Should they be approached still closer, they spring into the air, and with rapid strokes, make their way to the nearest tree, or clump of bushes, or else to some remote part of the garden. Their flight is accompanied by a loud flapping of the wings, when suddenly flushed, and although they appear to fly heavily, they really fly very lightly and rapidly. They are such pretty, quaint little things, that I have misgivings about shooting them, and always feel guilty after doing so. It is seldom that a prettier sight is seen than that of a company of a dozen or so of these little birds walking along in search of food. They are gregarious, and it is seldom that a single bird is found far from the rest of the flock. In running along the ground, they carry their tails one moment straight out behind, and the next it will be raised at an angle of 80° like a wren's. They are just commencing to mate, and I hope to be able to secure some of their eggs before long.

The Florida Darter, (*Plotos anchinga*), is quite common here on the river and small streams. They are an ungainly, awkward bird, and yet to my mind among the few birds that combine grace, beauty, and ugliness. They may frequently be found perched in the branches of the trees along the water courses, or sitting on some stump or log in the water. By approaching slowly and carefully, it is possible to get within a few rods of them, and a good shot may be obtained. But if shot at, and wounded, give up all hopes of getting him, for with a splash, he falls into the water, no matter how high up he may be, and sinks to the bottom like a stone, and if you remain quiet for five or ten minutes, you will see his head and neck appear at a considerable distance from where he fell, pushing his way through the lily pads and "Bunnets" towards some retreat. When frightened from their perch, they generally rise high in the air, and fly some distance up the stream, and in a straight line as a rule, although I have seen them flying around in circles like a Hawk. Strange as it will probably sound to those unacquainted with the bird, their flight is performed much after the fashion of Hawks; a few quick, sharp strokes of the wings, then sailing a short distance, while their long neck,

(which one would think would be folded into a reef like a Heron's) is carried straight out in front like a Duck's. They seem to have a particular place or branch on a particular tree on which they like to perch, and although their feet are full webbed, yet they alight with perfect ease. Here on this limb they may be found at various times of the day sunning themselves, by keeping the wings expanded, and occasionally beating them. This, I believe, is done to dry their plumage, as my experience with them has been that they are not a water-proof plumaged bird, for on shooting them, and fishing them out of the water within *one minute*, I have found their plumage soaking wet, and it has taken all night and part of the following day to dry it out. As may be seen by their bill, they are a fish eating bird. In one of my birds I found four large fish, averaging six inches in length by three in breadth (lying flat). They were of the species known as Bream here, and are common in all the waters.

The Florida or Scrub Jay (*Apelocoma floridana*) as it is called here, is quite common in the scrub land, but is of such retiring habits, that I have not succeeded in observing it very closely. They are sometimes found in companies of two or three, and do not seem to associate with the common Blue Jay. They have a hoarse croaking noise that they repeat at intervals. Their food, as near as I can find out, consists of seeds, insects and berries.

The next bird of which I shall make mention is the Limpkin, (*Aramus pictus*.) This is also a strictly local bird (as regards the U. S.), as were the last two, and is found in many of the streams and water courses, and in the marshes. They have a loud, wild scream, in consequence of which they are called in some localities "Crying bird." If flushed without thoroughly frightening them, they alight on the nearest projecting dead branch, or stump, and in doing so, it appears very hard for them to get their balance, as they flap their wings, lean over, and make considerable fuss about it. In dissecting their stomachs, I expected to find the food usual to wading birds, but was considerably surprised to find them full of large snails, of which the birds had taken pains to remove the shell before swallowing. Their meat is considered a great delicacy here by the colored population, and large numbers of them are shot and converted into "Gumbo-soup." I have never tried any myself, but from its appearance should think them to be very good eating.

The Great White Egret, (*Ardea egretta*), is also here in large numbers, but they are exceedingly difficult of approach, and to one who contemplates coming down with the idea that he is

going to have a good time shooting White Herons, (as they are called here), let me say that he will probably fail. And to illustrate let me give an account of a hunt for them I took a short time ago. After a long and somewhat difficult search, I at last discovered one. Now that Heron was not standing on a log by the side of a creek waiting to be shot. He was out in the center of a large prairie where there was no opportunity of getting within gunshot. He was fully a half mile away, and to all appearance he would stay there. Now I have the conceit to consider myself a pretty good sneak (for bird hunting) and I set to work to crawl up to him. There was not a spear of grass on the whole plain to hide behind, or anything else for that matter, but finally I *did* succeed in getting a single tuft between him and myself, and then began what would have appeared to a looker on, the attempt of an elephant to approach a flea behind a needle. Bear in mind I was crawling on hands and knees, inch by inch, in black mud, varying from three inches to a foot in depth. That Heron was fully a half mile away when I started, and after two hours' hard work I had actually got within two gunshots of him, and was just beginning to think how nice that skin would look in my cabinet, when away he went for parts unknown. I was scarcely disappointed, not expecting to get him in the first place, but I intend visiting a place where large numbers of these birds roost every night, and then hope to get at least one good specimen.

My Experience with Screech Owls.

BY C. W. R., WASHINGTON, D. C.

In May, 1883, I found a Screech Owl's nest in a hollow limb, about thirty-five feet from the ground. It contained four young, about a week old, which I carried home to raise as pets. The young were covered with white down, and, when found, were lying on a bed of decayed chips. About the nest were pieces of mouse skin, the feathers of a Towhee, and some gray pellets.

The Owls were placed in a small box on a bed of sawdust, and were fed on raw meat. They soon grew large enough to hop on the top of the box, where they would sit and blink, and stare, by the hour. It soon became necessary to remove them to better quarters, so a large cage was built in the shed, where they devoted themselves to hopping from one perch to another, all day long, for the first few days. One day one of the Owls found his way through the bars of the cage, and flew to the floor. An old hen with chickens came in presently, and recognizing him as an enemy, went for him and killed the poor Owl in a

minute. They had now acquired a soft gray coat of feathers. The remaining three were placed on a limb of a tree one morning for exercise, and the smaller and weaker one of them, who had not yet learned to fly, fell from the limb and hurt himself. He was wrapped in a strip of cloth and put in a box alone, and when seen half an hour later, he had swallowed about two inches of the rag he was wrapped in, and seemed bent on swallowing the rest. It was cut off, for he would not, or could not, let go. After taking this medicine he pined away and—was as well as ever in a few days, and better, for he began to pick up, and was soon as strong as the rest.

It was now July, and I noticed a few red feathers pushing their way through the gray ones, and it was not long before they were clad in the red or mottled plumage. The Owls suffered a great deal from the hot weather, and were panting all day long, so I got a tin pan full of water and set it in the shed, then set the Owls on the edge, and they went in and enjoyed themselves. They always wet themselves completely through, and were unable to fly for some time after. After a bath they would go to a sunny spot and sit there, with their wings spread and their eyes half closed. They also took sand and sun baths, and would sit in the sun with their wings extended for some time.

One morning an Owl was missing, and the following day another, and nothing was heard of them afterwards. The remaining one was removed with his cage to a shady place in the open air, but he preferred the shed in the day time. When allowed the freedom of the shed at night he did not molest the chickens, nor did he get in their way himself, but if a lighted candle was taken in there after dark, he would put it out with his wings. He would pounce on live mice and birds that were brought to him, always being sure to get his claws about the throat of his victims. I generally found him in a certain corner behind some boxes, in the day time, where he would remain undisturbed until evening. He liked grass-hoppers, especially the large ones, of which I used to get him a large number. When placed before him alive, he would stand erect and gaze at the hopper for some time, then he would go prancing around it, stamping his feet, seemingly to get a favorable position to pounce from, and suddenly come down on it with both feet, as if it was something that would require all the strength he could muster. He always tore off the legs of the hoppers, and the wing and tail feathers of birds.

One day he was found in his favorite corner looking rather worn out, and the cause was ex-

plained next day by his throwing up a pellet in which was a *nail one and three-fourths inches long*. He was never in a hurry unless after something, or something was after him. He paused after everything he ate, and every swallow he took while drinking. Whenever he saw a cat or dog, he would make off in the opposite direction in short time. He did not seem to be troubled at all by the light, and would look at Buzzards and Chimney Swifts, following their flights with his eyes. It was amusing to see him pounce on red ants. He would watch one and wait until it got some distance away, then run after and pounce on it, after his manner of pouncing on grass-hoppers. He seldom got the ant, but a clawful of dirt instead. He would nibble at the dirt and then drop it to see where the ant had gone, then after it again. He went through the queerest notions when looking at anything; would bob his head first to one side and then the other, then draw it forward and backward, while all the time the pupil of his eye would grow large, then small. I kept him through the Winter, and the following Spring he disappeared.

Notes on the Birds of Manitoba.

BY ROBERT MILLER CHRISTY.

(*The Zoologist*, April, 1885.)

During the last two years I have several times had occasion to visit that newly-opened but much-talked-of region known as Manitoba; and as on each visit I devoted as much time as I was able to spare from other branches of Natural History, to the study of the Ornithology of that country,—a subject to which very little attention has hitherto been directed,—I now propose to offer a few remarks upon it. It must, however, be clearly understood that my observations are put forward strictly as *notes*. Many, even of the commonest birds, are not so much as referred to herein, simply because they did not happen to come specially under my notice. Most of the following notes were made near the town of Carberry, 105 miles west of Winnipeg, during the months of August, September, and October, 1883. I cannot too fully acknowledge the assistance given by my friend Mr. E. E. T. Seton, of Toronto, who for several years past has resided in Manitoba, and has done much towards investigating its avi-fauna. The nomenclature used is that employed in the new edition of Dr. Coues' "Key to North American Birds."

The popular idea of Manitoba as an icy and inhospitable country is not altogether wrong, as far as the Winter is concerned; but of the Summer season it is wholly incorrect. While the lat-

ter lasts, bird-life in the greatest variety everywhere abounds. Meadow Larks, "Quailies," Prairie Chickens, Bay-wings, and a hundred other kinds breed on the open prairies; Hawks, King-birds, and Nightjars swarm in the "bluffs" and woods; wild-fowl in the "sleughs."* Early Spring and late Autumn see a vast army of migrants on the move; whilst, even in Winter, Hawk Owls, Snowy Owls, Shore Larks, Snow Bunting, Crossbills, Pine Grosbeaks, several Woodpeckers, "Chickadees," Grouse, Shrikes, &c., enliven the somewhat dreary scene.

It will be well to say something of the haunts of the birds spoken of in the following paragraphs. Carberry stands at the south end of what is known as the "Big Plain," which is merely a rather unusually large stretch of unbroken prairie. South of the town, and extending almost to the Assiniboine River, lies an extensive range of desolate sand-hills, which are seldom invaded by the foot of man, and are likely long to remain in their primitive condition; they consist merely of wind-formed dunes, with hollows between, which are filled with water, and form the home of many a rare bird and mammal. The sand of which the hills are formed is so pure that it can only support a very scanty covering of grass; and it is to this circumstance that we are indebted for the fact that the sand-hills, unlike the prairies, support a fairly abundant growth of trees, such as Spruce, Poplar, and Oak. Were the grass sufficiently long and dense to "carry fire," the trees would be quickly killed and burned to logs. Mr. Seton has just succeeded, after a long and exciting hunt, in killing a Moose in one of the woods on the sand-hills. Through the centre of the range of sand-hills runs Pine Creek, a sluggish stream clogged with water-lilies, and fringed with willows and bulrushes. For several miles on either side of the creek extends a huge swamp, covered thickly with trees of Spruce and Tamarac, where the Indian pitcher-plant, *Sarracenia purpurea*, grows by the acre, and all things combine to make a true naturalists' paradise. In Winter, when everything is frozen hard, this swamp may be crossed with ease; but so wet and impenetrable is it in Summer, that I have little hesitation in claiming that no one except Mr. Seton and myself have ever crossed it at that time of year. Of the prairies not much need be said; they are flat, covered with a fine growth of grass, and interspersed with bluffs, which are gradually disappearing before the hungry fire. If prairie-fires had been by some

*On the Manitoban prairies any isolated cluster of trees or a copse is known as a "bluff"; a "sleugh" is the invariable name for a wet, marshy spot or a shallow pond.

means arrested fifty years since, Manitoba would to-day have been a densely-wooded, instead of a prairie, country. The fire, too, annually destroys the young trees that spring up. In the moister parts, where lakes and ponds arrest the progress of the fire, extensive woods of poplar are found, in which many woodland birds are able to find a home, even though Manitoba is essentially a prairie country. Of the excessive fertility of the prairie soil there is no question.

The American Robin, (*Turdus migratorius*), is a common bird among the trees on the sand-hills and in the bluffs, where it also breeds.

An almost equally common species in similar situations, and in the willow-clumps on the prairies, is the Cat-bird, (*Mimus carolinensis*). It is a bird not easily overlooked, for on entering any dense copse one is almost certain to have several peering through the foliage and incessantly uttering their loud, harsh, and extremely cat-like mew, especially if the nest be near at hand. It approaches very close, and is easy to shoot. I found it breeding in a fringe of willows beside the creek which intersects the dry, treeless prairie round Moose Jaw, 398 miles west of Winnipeg.

The Long-tailed Chickadee, (*Parus atricapillus septentrionalis*), is the only Tit I remember observing, and I believe it does not breed in Manitoba. I shot the first specimen on September 14th; two days later a pair entered a room in which I was sitting, and I captured them. The "chickadee-dee" of this species is unmistakable.

Sitta carolinensis was not an abundant species, but I brought home one specimen.

One one occasion I was told that a Wren, (*Troglodytes aedon*), had built its nest in the pocket of a coat hung on the door of a ferryman's house on the Souris River.

The Shore Lark, (*Eremophila alpestris*), is a common species, breeding on the prairie throughout Manitoba, probably raising more than one brood in the course of the year.

The eggs and nest of the Connecticut Warbler, (*Oporornis agilis*), taken by Mr. Seton in the extensive tamarac swamp south of Carberry, are now in the Smithsonian Institution. They are, I believe, the first that have been taken.

The Swallow-tribe seems to be usually scarce in Manitoba; but farther west, as far as the Saskatchewan, one species is abundant, and breeds round all the water-tanks and under many of the bridges along the railway. As three years ago this region, through which the line now runs, was practically uninhabited, and the Swallows consequently could hardly have then found suitable nesting-places, it seems probable that the range of the species has been considerably extended in

that time—an instance, doubtless, of the rapidity with which some species follow man as he extends the area of civilization.

At least one species of Shrike is common and breeds, building its nest largely of the stalks of a species of *Gnaphalium* in the branches of the low, scrubby oaks that cover the sand-hills.

The Goldfinch, (*Astragalinus tristis*), is fairly common on the edges of the bluffs.

The little Byswing, (*Poæetes gramineus*), is one of the most familiar of prairie birds, and nightly sings a subdued kind of vesper-song as the sun goes down. Its most notable peculiarity, however, is its habit of flitting along a trail or pathway in front of an advancing wagon or person, alighting every few yards. As it is but comparatively recently that there have been any human trails over the prairies, it seems probable that this proceeding is a relic of a habit acquired by the bird of flitting before the buffaloes along the paths made by those animals.

About the second week in September the Snow-birds or Juncos, (*Junco hyemalis*), became abundant, and remained so for at least a month.

The Bobolink, (*Dolichonyx oryzivorus*), is of course common. I saw birds in both the black and buff plumage together near Carberry on August 30th.

The Red-winged Blackbird, (*Agelaius phœniceus*) is very abundant, and breeds in the rushes round most of the lakes; collecting into flocks later.

The gorgeous Baltimore Oriole, (*Icterus galbula*), is far from rare, and its hanging nest is often to be found in the Poplar trees on the sand-hills.

No bird is more characteristic of the prairies than the Meadow Lark, (*Sturnella neglecta*.) It is very common in Summer, and breeds abundantly. Its clear, musical whistle (almost, if not quite, equal to the song of the Nightingale) is uttered by the bird either when upon the wing, the ground, or a tree, and may be heard for a great distance. Towards the end of August, though the birds had not left, they had largely ceased whistling; but the arrival of a few warm days, about the 10th of September, set them off again for a time. When I left, about the middle of October, there were still a few small family-parties about, though the great majority had gone south. In the previous year (1882) Mr. Seton says the main body left about the 17th of October. It is decidedly a shy bird, even in a country where most birds are notably less wary than in England; and, common as the bird is, it is no easy matter to obtain a specimen just when one wants. As Mr. Seton remarked to me, it bears truly heraldic markings on its breast—or, a chev-

ron sable. Late in July, I shot a young specimen with a large, festering sore upon its breast, doubtless caused by its having accidentally flown against a spike on one of the numerous "barb-wire" fences on which this bird frequently perches. Not long after, I shot a Purple Grackle with an old wound on its head, which was probably occasioned by the same means. I have often thought what a capital thing it would be to introduce the Meadow Lark into England. So far as the plumage and song are concerned, it would take rank among our brightest-colored and most admired songsters; while its hardy nature would allow of its remaining with us the whole year round, as indeed it often does in Ontario and other districts farther south than Manitoba. Perfectly harmless and accustomed to grassy countries, it would quickly become naturalized in our meadows, where it would find an abundance of insect food, and would doubtless soon increase sufficiently in numbers to serve, if need be, as a game and food bird, as it largely does in the United States. No other songster that I ever heard equals this bird in the sweetness and mellowness of its notes.

Two specimens of Grackle, the Purple, (*Quiscalus purpureus*), and the Rusty, (*Scolecophagus ferrugineus*), are excessively abundant, and often collect into enormous flocks after the breeding-season. Under the name of "Blackbirds" they share in common the curses of the settlers, on account of the great damage they do in the harvest-field. They are both very noisy birds.

I did not meet with Brewer's Blackbird, (*Scolecophagus cyanocephalus*), in Manitoba, but shot a specimen—probably a young male—at Maple Creek, 597 miles west of Winnipeg, on July 10th, 1884.

(To be Continued.)

Brief Notes.

NOTES FROM TEMPLETON, PENNSYLVANIA.—Our position is peculiarly favorable for observation, being close beside the Allegheny River, which, being the first river west of the Allegheny Mountains flowing south, is a favorite path of the migratory birds. Ten miles east or west of the river not half the birds can be seen that are common upon every bush and tree on the hillsides immediately facing the river. From our note-book for 1881, we take the following: First Robin, February 11th. On the 21st, saw a pair of Broad-winged Hawks mating; first Bluebird, 23d; Crow, 28th; March 5th, Wild Ducks seen, kind unknown; 12th, Wild Geese; 16th, Crow Blackbird; Meadow Lark; 17th, House Pewee; 18th, Carolina Dove; 21st, Song Sparrow. Then followed rough weather until April, when on the 15th we note Towhee Bunting; 23d, Brown Thrasher; 24th, Water Thrush; 25th, Wood Robin, Rose-breasted Grosbeak, Catbird and Bank Swallow; 26th, Baltimore Oriole, Kingbird; 30th, Scarlet Tanager, Yellow-throated Vireo and Common Yellow Warbler; May 5th, White-eyed Vireo; 8th, Indigo Bird, female Rose-breasted Grosbeaks; 13th, Cuckoo.

The dates of arrivals vary considerable from the above during a number of years. This is noticed as much in the nesting of the birds here as in their first appearance. We took two sets of Broad-winged Hawks (*Buteo pennsylvanicus*), on May 3d, two years, while the last three years always found complete sets early in April. The Cuckoos for the last three years have appeared regularly on May 20th, never sooner nor later, and from their great numbers we are inclined to think they all arrive at once—by night.

From notes for 1883 we find the Golden-crowned Thrush arrived May 3, Wood Pewee and Bobolink the 5th, White-crowned Sparrow and Whip-poor-will 8th, Humming Bird 8th, Red-eyed Vireo on the 10th, and Cuckoos the 20th, finishing up the course with the Yellow-breasted Chat on the 24th.—*Geo. Enty.*

NOTES FROM MARLBORO', OHIO.—Marlboro, Ohio, is in 41° N. L., and 3° 10' W. of Washington, and is nearly on the water shed separating the water flowing into the Ohio river and that into Lake Erie.

This Winter has been unusually severe, many Quail having frozen or starved to death, and also delaying the Spring migration of the birds.

Heard a single Robin on March 4th. Saw or heard no more till the 11th, when I saw six in a tree. Saw Bluebirds on the 6th also. Killdeer on the 15th. These had good reason to repent of their hastiness, for on March 17th the mercury dropped to 20° below zero, and at this writing it is still cold. On the 14th it was quite warm and Spring like, thawing rapidly and a strong southwest wind which brought a good shower of rain in the evening, but in the morning everything was frozen solid. I have the following from a reliable person near here:

On the morning of the 15th he saw a large flock of Geese coming from the south; they were flying low when first observed. Watching them he saw them rise to such a height as to be almost out of sight. There they remained stationary for several minutes all the time keeping up a loud squawking as if in consultation. Presently they wheeled around and flew toward the south. They probably rose to such a height as to see over a vast amount of territory, and seeing no open water concluded to return south.

On the 16th, I saw a flock of twelve flying south; they were scarcely higher than the Apple tree tops.—*L. M. B., March 20th.*

LEWIS' WOODPECKER IN TEXAS.—Noting in March "O. and O." p. 35, that this species had been added to the avifauna of Texas in 1834, has caused me to call attention to the following article, which I sent to "Science News," on March 25th, 1879:

"LEWIS' WOODPECKER IN MIDDLE TEXAS."

That this species (*Asyndesinus torquatus*), occurs as far east in Texas as 98° long, I have not a doubt but as I have neither taken nor seen the species, it may be well to detail the testimony.

Three parties were contemplating a trip some 300 miles southwest of our town, and wishing to get some specimens of Texan and Yellow-faced Woodpeckers, I arranged with them to send me some birds by mail. Upon their return they inquired about the Black Woodpecker they had sent from Brown county, as to what it was. As the birds had miscarried, I was in the dark. They described the bird as size *C. aurifrons*, very black, with whitish ring around neck, deep red on belly, and the plumage of the under parts very "coarse." Not thinking at the time what it could be, I questioned two of them very closely and at different times, and the characters described were exactly alike. The peculiar bristly feathers of the belly in this species would identify it beyond doubt, if no other description was given.

That the bird is very rare here is probable from the fact

that only two were seen in eight weeks' travelling and camping over the country. The latter was in Wise county, adjoining this (Cooke) county."

It should have been stated that the bird was taken in the Winter prior to the date of my article. The last named locality extends the range of the bird 3° further east than San Angelo, Tex.—*G. H. Raysdale, Glinesville, Tex.*

THE BARN OWL.—In a paper read before the Hamilton (Canada) Association, Mr. T. McIlwraith, speaking of the Barn Owl, *Strix flammea*, says: "In Scotland, where the species is common, it is still regarded with aversion, and its visits are looked upon as a forerunner of disaster to the family. Its cry at night is described as most appalling, and often referred to in this way in the songs and poetry of the country. Thus one of Burns' lotharios when seeking admission to the chamber of his lady love, in describing his uncomfortable position outside, mentions among other causes, that 'the cry o' hoolets make me eerie.' I have listened attentively to the cry of this and other Owls, but have never recognized anything so terrifying about them. Not very long ago I heard the serenade of the Great-horned Owl, down near Stony Creek, under the mountain. It was loud and harsh, and struck me at the time as resembling more than anything else the neighing of a young colt. Such sounds, when heard unexpectedly in a lonely place, at night, are not calculated to inspire courage in a breast already depressed with superstitious fear, yet the effect produced must, to a great extent, depend upon the train of thought passing through the mind at the time, and though many a stalwart Scot has quailed at the cry of the 'Hoolet,' yet it is a matter of history that the sons of that romantic land when roused to enthusiasm by similar sounds extorted from the national instrument, have performed deeds of personal valor which will live in song and story as long as poets and historians seek such themes."

NOTES FROM RALEIGH, N. C. RED CROSSBILL, (*Loxia americana*). We have shot four of these birds this Winter, two of them on March 11th, on which occasion they were in company with another which we did not get. The second pair were killed on March 23d, snow being on the ground at the time. In both cases the two killed were male and female, and in the second case the ovaries of the female were much enlarged.

RED-BELLIED NUTHATCH, (*Sitta canadensis*). We procured another specimen of this bird, a female on March 30th.

OAK-WOODS SPARROW, (*Peucez aestivalis illinoensis*). On April 1st I shot a specimen of this bird. I started it up whilst walking along the edge of a meadow, between which and the creek was a belt of small trees and bushes; it settled in a small Water Oak, was observed to be unlike any Sparrow I had seen, and was accordingly killed. Its general color was chestnut above, much marked with ashy and somewhat streaked with black in the interscapular region, below buffy, a dusky line on each side of chin, an obscure superciliary stripe but no traces of a median one on the head. Feet and legs pale, tail much graduated. L. 5½, W. 2¼, T. 2¼. Edge and bend of wing yellow, but none on head.

AMERICAN HOUSE WREN, (*Troglodytes aedon*). Shot a specimen of this bird on April 11th, the first I have met with in this locality.

LARGE-BILLED WATER THRUSH, (*Siturus motacilla*). We procured a specimen of this bird on April 9th, and saw one a few days previously. The specimen procured drew attention by its song, being a male. It was very shy, and it was some time before we could get near enough to shoot it. This bird is quite rare here, the Small-billed species being common in Spring, Fall and some in Summer, but this is only occasional.

BLUE-HEADED VIREO, (*Lanius solitarius*). Shot a specimen of this bird on April 2d, in some mixed woods; this year it is the second Vireo to arrive, the White-eyed being the earliest, as it came on April 1st.

YELLOW-THROATED WARBLER, (*Dendroica dominica*). Procured two specimens of this bird on April 1st, and one on April 2d. They were quite silent, uttering no song only some faint call notes, unlike the Black-throated Green Warbler, (*Dendroica virens*), which I procured on April 1st. The latter was in full song, and thus attracted my attention, which proved fatal to it. Besides the above, Black and White Creepers, Blue-gray Gnatcatcher and Maryland Yellow-throat all arrived on April 1st, which bears out Prof. Cooke's observation that the night before the maximum of a warm wave brings most of the migrants. The night of April 1st was the night of maximum heat, but the birds must have come *before* then, as they were here on April 1st. —H. H. and C. S. Brimley.

THE TURKEY BUZZARD, (*Cathartes aura*). This is a very common bird in southwestern Louisiana. It is a permanent resident, but its nest is but sparingly found. Last year while surveying a line through the woods, near Vermillion River, we found a nest, if that may be called a nest, "which nest was none." A large Red Oak had fallen, and become hollow, and one side gone—rotted away on the under side. The nest was on the ground under the shelter of this old tree, which made a dry place. There were four young in the nest, about the size of a Bob White, or a little less. They were white as cotton, and showed little or no fear. There was a *loud* odor pervading the place, and the ground was bare of all vegetation for some distance around, which seemed to have been killed by the strong excrement and offal of the birds. I did not observe any old birds about in the trees. The nest was in a very lonely place, and one seldom visited by man. There is something strange in the power the Turkey Buzzard possesses (in common with some other birds,) of soaring. I have watched them often soaring for an hour, perhaps, without the movement of a wing, and without any apparent descent toward the earth. They can even rise a little distance without moving the wings, but when they wish to rise much they flop the wing. I have observed them when soaring very low, and quite near me. Their wings, tail and body are set at an angle like a kite; and they go right against the wind for a short distance. No explanation, I believe of this phenomenon has ever been offered, although the facts are admitted, I think. What mysterious power enables them to apparently set the law of gravity at defiance? Is there some *unknown force* in motion which they bring into action? Who can answer? The Turkey Buzzard, for the spread of its wing, is an exceedingly light bird. Can it be possible that the temperature of its body is such as to generate a sufficient amount of heat under its broad spreading pinions to sustain it in the air, on the principle of the hot air balloon? Can it create an ascending column of hot air under itself, sufficient to support its light body? Who will solve this problem?—W. W. Edwards, Abbeville, La.

NOTES FROM SHELTER ISLAND, N. Y. The past Winter has been unusually severe, and the Spring thus far, cold and backward. Notwithstanding the inclemency of the weather, the Meadow Larks have remained all Winter, and the cheerful twittering of the Goldfinches has been heard in the severest weather. The Ducks were nearly all driven to other localities by the bays being frozen completely over, a few Long-tails and Golden-eyes remaining in the tide-holes, the former shy, but the latter affording fair shooting over the decoys. Crows have been abundant, and I have noticed that when they were seen, passing southward in flocks, we almost invariably had a storm from the direction

they were leaving. Can their movements be utilized as a warning of approaching storms? A few Buffleheads have been reported by gunners, and a fine male Mallard was brought me to be mounted, which was shot near Long Beach. The first migrant seen was a Red-winged Blackbird on March 5th. Crow Blackbirds came the 7th, and Robins the 11th. I shot a Fish Crow on the 17th, which was a female, and very tame. It flew by me so close I easily brought her down with a charge of No. 9 shot. Following are the dimensions: Length, 16.84; extent, 33; wing, 11.30; tail, 6.40; bill, (culmen) 1.80; Tarsus, 1.82; longest toe and claw, 2.03 inches. Kingfishers arrived the 27th, Field Sparrows and Cow Buntings the 28th. The Wild Geese took advantage of a fair wind and passed over in hundreds on the 31st. Saw the first Fox Sparrow April 3d, and heard the Woodcocks for the first time, although I had kept a sharp lookout for them for weeks. White-bellied Swallows came the 6th, and the Meadow Larks, Robins, Blackbirds, Savannah Sparrows and Field Sparrows became more abundant. The Fish Hawks were about a week behind time, on the 27th of March. In regard to the remarks, "Experience with Screech Owl," I wish to say that I put three of them in a cage over night, and the next morning I found the weakest of the three killed and more than half eaten by his companions.—W. W. Worthington.

RED CROSSBILL IN ILLINOIS. On April 4th, '85, I received a Red Crossbill (female) which was seen to drop dead from a tree. On the 8th, I received another female, and on the 10th a male in fair plumage, which were shot from a heap of squashes, on the seeds of which they were feeding. I have since heard of two more that were found dead.—J. E. Dickinson.

CORRESPONDENCE.

TO REMOVE SKUNK SCENT. ABSORBENT.—In the last number of "O. and O." is an inquiry for something to remove Skunk scent. I have found wrapping an Owl—or other object—in green Hemlock boughs to be very effective. I have only used this remedy in the Winter, upon freshly killed birds, but have no doubt skins could be treated in the same manner with benefit. Changing the boughs occasionally is an advantage.

The past Winter a very fine specimen of the Great Horned Owl was brought to me, which was strongly scented with black-and-white. After keeping it in Hemlock for ten days, I mounted it, and in due time returned it to its owner, who placed it in a close, unoccupied room. He recently informed me that sometimes upon first entering the room he could detect a little scent, but usually nothing.

For an absorbent, try fine dry sawdust—the finer the better—agitating the feathers the same as with other absorbents. It is the best thing I have ever used for that purpose.—C. O. Tracy, Taftsville, Vt.

ILLINOIS BIRD LAWS.—Some time ago I remember reading an inquiry in the "O. and O." concerning the killing of birds. In reply, I will say that the laws of this State are very strict in regard both to the killing of birds and the destruction of their nests and eggs. A few years ago the Legislature took action on the laws, exempting Taxidermists and persons making collections for scientific purposes. This is a very wise provision, and one that should exist in every State in the Union.—Horace A. Kline, Polo, Illinois.

RECEIVED.—H. G. Smith, Jr. Prentiss Baldwin.

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No. 6.

Mississippi Valley Migration.

BY PROF. W. W. COOKE, MOORHEAD, MINN.

Last month we treated of migration during a week in March, when the first wave was passing over the Upper Mississippi Valley. This month we take up a week in May, just before the close of migration for the Spring. We have chosen the seven days from May 4th to May 10th, 1884. This includes two warm waves and an interim of indeterminate nature. Of course, we find the birds migrating under very different conditions, and as a result a very different set of birds. We look in vain for notes on Ducks, Geese, Robins, &c., and in their stead we have the brilliantly colored Orioles, Grosbeaks, Indigos and Tanagers. In the place of the frost and cold of March, there is a Summer temperature, frostless nights, and swarms of insects ready to hand for the Warblers, Vireos and Flycatchers. But the laws of atmospheric movements remain the same, and the effect of these movements on the birds is the same in kind, but slightly different in degree. A north wind still retards their movements, but it comes with no icy breath to chill their blood, and when the fancy takes them, they move easily against its no longer dreaded force.

Our record begins at 11 p. m., May 3d, and we find an area of low pressure in northwestern Dakota and Manitoba, being very low, 29.38 inches at Qu'Appelle. Most of the Mississippi Valley was included between 29.7 inches and 30.0 inches, the latter being the reading all along our eastern border. This low area produced southerly winds over most of our district; there being nothing but S.S.E. and S.W. winds in the region north of St. Louis. The temperature was high, 58° to 61°, along the Mississippi and the lower Missouri to St. Paul and Omaha, falling to 55° at St. Vincent and Bismarck, and falling rapidly around the lakes to 42° at Marquette. South of Milwaukee and Omaha it was cloudy, north of there clear. During the night the low area moves south to a little below Bismarck, the S.

wind still blowing over the Mississippi Valley with increased cloudiness in the northern part. By 3 p. m., May 4th, West Los Aminos, Col., is the center of the low area and there is a decided fall in pressure over all the United States east of the Rocky Mountains, causing the S. wind to blow still harder, with clouds and local rains in the Upper Mississippi Valley. Such was the preparation for the bird wave of the night of May 4th, for after 3 p. m., the low area turned northeastward and passed directly across our upper district, being central at Yankton at 11 p. m., with a pressure of 29.64 inches. It will be seen then that all migration during the nights of May 3d and 4th, was on a falling barometer, on the night of the 4th with cloudiness, and on both nights with warm southerly winds.

In our study of migration in May we must deal almost entirely with the 11 p. m., observations of the weather, for toward the latter end of migration the movement is for the most part by night. It is true that a few species like the Warblers, for instance, move a little during the day time, passing slowly from tree to tree, but only short distances are made in these journeys, leaving the bulk of the movement to be performed at night.

During the night of May 3d, we find but a few movements, and more than half of these are around St. Paul and northward, where the influence of the low area in Manitoba was already beginning to be felt. The full advance was postponed until the next night, which was one of great movement over most, if not all the country from St. Louis to Manitoba. The districts which furnished but nine records for the night of May 3d, on the next night show nearly seventy. The wave seems to have been most pronounced in Iowa, northern Illinois, southern Wisconsin and at St. Louis, with a heavy wave at Manitoba, and another in northern Texas, but it is not unlikely that this seeming volume is somewhat due to the greater number of observers in these parts. It might be truly said of the records of this wave, that in each district their number is about pro-

portional to the number and excellence of the observers. It also seems probable that to the northeastward the limit of the wave was at Madison, Wis., thence up the Mississippi to St. Paul. There is a striking similarity in the species which are reported from the stations between St. Paul and St. Louis, with this difference that while the northern stations report the first males, St. Louis reports first females and bulk. Nearly one-half of all the records is made up of notes on the Baltimore and Orchard Orioles, Rose-breasted Grosbeak, Indigo Bunting, Bobolink, Catbird, and Red-headed Woodpecker. No less than twelve records are sent of the Baltimore Orioles from six different States. We would look in vain, however, for these species in the notes from Manitoba. There we have a great bird wave, it is true, but the species are totally different, being those like Yellow-rumped Warbler and the White-crowned Sparrow, which passed through the central district some weeks before. As in the case of the great wave which we studied in March, there are about half as many notes reported May 6th, on the day after the wave has passed, but the notes come from the same places as the day previous, and are "ones" and "twos," indicating that they are species which arrived the day before but were not noted. The only exception to this is in northeastern Wisconsin, where the notes would indicate a large local wave, but though it is now too late for verification, it would seem more likely that the observer was unable to be in the field on May 5th and did not see the arrivals until the next day.

Now comes a north wind period. The low area has passed east of our district and is followed by colder and at the same time cloudier weather. During May 7th and 8th there is not a record out of the whole eighty with a S. S.E. or S.W. wind. But the birds do not stop; there seems to have been a regular though not rapid advance, there being on the night of May 6th, thirty-six records, every one with N. or N.W. wind and cloudy sky. Were it for a single night only, we might be inclined to call it a mistake of the observers, but the whole eighty records for the two nights cannot be wrong, and we are compelled to believe that during the latter part of migration, there is no night so unfavorable, but that more or less migration takes place.

On the night previous to May 9th, we find the least migration of the seven nights we are studying. A low area had developed two days before in Manitoba, passed across Lake Superior and became central at Lake Huron, May 8th, at 11 p. m. It had produced a great rise in temperature,

5° to 11°, in the Upper Mississippi Valley, so much so as to make this section actually warmer than the middle portion. LaCrosse 70°, St. Louis 65°, Omaha 69°, Little Rock 66°, Bismarck 55°, Ft. Elliott 53°, but the area passed so far north, that the south wind it caused was of too short duration to start migration. The notes given are those from places where the southerly winds were felt, principally in northwestern Illinois, with the exception of a batch of records from central Iowa, where a northwest wind prevailed. The whole of our district was clear, and the average barometer about 30.0 inches.

In western Nebraska and eastern Colorado, it is found that the barometer, though high, is falling and during the day time of May 9th it falls rapidly. At Yankton, during the sixteen hours previous to 11 p. m., May 9th, the pressure falls .34 inches to 29.74 inches. Thus the low area developed right in our district, and its influence was speedily felt, bringing on southerly winds, and sending northward almost the last great wave of the Spring migration. The temperature did not vary much from that of the night before, except to rise a little in the immediate vicinity of the low area and to fall at La Crosse and northeastward; sky mostly clear; wind variable, the low area not having yet had time to fully affect the winds, but every one of the records comes from places where the winds were southerly, and consequently from the cloudy places; so that, although the larger part of the Upper Mississippi is clear, the cloudy records form 73 per cent. of the whole number. Another thing is noticeable, that notwithstanding the sky was cloudy yet the dew point was many degrees below the temperature, showing that the air was very dry. While the average of the difference between the temperature and dew point of the records of May 5th, is only four degrees, with a range from 0° to 8°, that is the air was almost fully saturated with moisture; the records of May 10th show an average difference of fifteen degrees, with a range from 11° to 33°. Thus we see that the humidity of the atmosphere has little or no effect on migration, and we can leave that out of future records.

This wave of the night of May 9th, like the one five days before, is an extended one. Along the western shores of Lake Michigan, where the weather has been cold and disagreeable for the four days previous, it is most strongly felt. Then there is little or nothing until we cross the Mississippi. Here from Keokuk to Moorhead, the night has been a time of great activity, even extending southwest to southern Nebraska and Kansas. No notes are sent from southern Dakota, and it is probable that almost no migration

took place in that territory, as certainly it did not in Manitoba. Nor is the movement of special importance south of Keokuk. The influence of the low area has not yet extended south of there, and it is not until the next night that a full bird wave occurs at St. Louis. Here then we have an excellent example of a bird wave and a warm wave both working from the north, southward.

In order to compare the conditions under which the birds were migrating in March and May, we will recapitulate in the same manner as last month.

The temperature at which the migration was made, is as follows: At 46°, 29 records of firsts; at 52°, 11 records; 55°, 116, 59°, 66, 63°, 70; 67°, 9. Thus instead of 37° to 41° as the favorite temperatures as was found in March, we have 55° to 63° as the favorite temperature for nearly the last wave. Indeed 63° is about the average temperature at which the real rear guard, the Cuckoos, Whipoorwills, &c., usually move.

In cloudy weather we find 184 records, and in clear weather 113, or 62 per cent. cloudy to 38 per cent. clear, as against 60 and 40 in March. The records with relation to the wind stand, with N. 64 records; N.E. 0; E. 6; S.E. 47; S. 49; S.W. 42; W. 23; N.W. 33; or for N. N.E. and N.W. 97; with 138 for S. S.E. and S.W.

The average barometer for 298 records was 29.88 inches against 30.00 inches in March.

In studying the conditions under which each species migrates, great dissimilarity was found. For instance the greatest wind velocity at which any Kingbird was recorded as migrating was 20 miles an hour, and the average velocity 9.8, while the highest velocity for the Redstart was 7 miles and the average only 3.1 miles an hour. The average temperature at which the Brown Thrush migrated was 54°, and the Orchard Oriole 62°. However, this part of the work, we have studied very little as yet, and will leave its full exposition until another time.

The Birds of the Vicinity of Troy, New York.

Mr. Austin F. Park, of Troy, recently delivered an interesting lecture under this title before the Troy Scientific Association. He exhibited a collection of about 230 specimens, representing 175 species of local birds. The lecturer gave a characteristic description of each bird family, and interested his audience with many important details. The songs of the thrushes peculiarly resembling the human style of expression and the beauty and intense activity of the insectivorous

warblers were dwelt upon. The bad side of the English Sparrows being so often a subject of comment by citizens, Mr. Park defended the birds by showing their excellent capacity as scavengers, and that the nuisance of their lodgment in vines, trees and window blinds can be avoided by routing them out once or twice in the night time, when they will leave their lodging place and seek other and more peaceful lodgings. This clearing-out process can be effected by the use of poles or fireworks or a stream of water directed from the hydrants. Their war upon insects is unremitting for a large part of the year, and when driven from town they seek the suburbs, and assist the farmer to destroy his grasshoppers, and sometimes, but only after the grasshoppers are gone, to dispose of his surplus grain.

Mr. Park showed a specimen of the Barred Owl, which was shot in Harrison Place a few years ago, which had in its stomach the foot and leg of a Screech-owl. A series of six Sparrow Hawks was exhibited, ranging from the white downy nestling to the adult. He also showed the Goshawks, Chicken Hawks and Sharp-shinned Hawks, of which the females are greatly the largest, and which live mainly on other birds. The White Gulls Mr. Park denominated the "white winged angels of the Arctic seas," which are rarely found here even in Arctic weather. The "Kumlien's Gull" is a species lately discovered. It breeds in Cumberland Gulf, in the region of Greenland. The one shown by the lecturer is the first recorded specimen found in this State. It is white, with a pearly blue back, and beautifully shaped. The speaker observed, concerning the intelligence of birds as indicated by the quantity of brains, that the amount of brains in proportion to the weight of the body is vastly greater in the active birds, as the Thrushes, Warblers and Sparrows, than in the Ducks and Geese, and that some birds have a larger brain in proportion to the weight of the body than is possessed by the average man. These facts indicate a higher degree of intuitive intelligence in the higher and more active grades of birds. The cerebrum of a Song Sparrow's brain has a greater weight, in proportion to its body, than the whole brain of the average man in proportion to his total weight. The birds made a beautiful and striking appearance. They constitute only a part of the very large collection of Mr. Park, which he is in hopes may some day be a nucleus for a public museum in this branch of natural history. The address was replete with interest, and was very instructive and entertaining to all who were so fortunate as to be present.

Winter Birds at Manhattan, Kan.

BY PROF. D. E. LANTZ.

The following birds have been observed by the writer at this station during the months of December, January or February. The numbers are those of the Smithsonian catalogue.

7. *Merula migratoria*, (Linn.) Sw. and Rich. American Robin. Occurs regularly in large numbers along our streams; remains during the coldest weather feeding upon hackberries, wild grapes, and the fruit of the moonseed (*Menispermum canadense*) and bittersweet (*Celastrus scandens*.) Some of these Robins remain until late in April, long after those which are Summer resident have begun nesting.

22. *Sialia sialis* (Linn.) Haldem. Bluebird. A permanent resident, wintering in small flocks in sheltered places along our streams. On warm, cloudy days they invariably come about the gardens and lawns twittering as in early Spring.

36. *Lophophanes bicolor* (Linn.) Bp. Tufted Titmouse. Resident, common. Sings early in February.

41. *Purus atricapillus* (Linn.) Black-capped Chickadee. Resident; abundant.

41a. *P. atricapillus septentrionalis* (Harris.) Allen. Long-tailed Chickadee. Resident; not common. Intermediate forms between this and the last are frequently found.

51. *Sitta carolinensis* (Linn.) White-bellied Nuthatch. Resident, common.

55. *Certhia familiaris rufa* (Batr.) Ridgw. American Brown Creeper. Winter sojourner; common. Have seen flocks of as many as twenty-five at one time, though they usually occur singly or in pairs.

60. *Thryothorus ludovicianus* (Gm.) Bp. Great Carolina Wren. Resident; becoming less common with the destruction of the old timber along our streams. Its song is first heard in the latter part of February.

65. *Anorthura troglodytes hyemalis* (Vieill.) Coues. Winter Wren. Winter sojourner; rare. None seen during the past season.

95. *Dendroica coronata* (Linn.) Gray. Yellow-rump Warbler. Abundant in migration. Some winters quite common. Saw them every day during December and January of last Winter; but they disappeared during February.

148. *Lanius borealis*, (Vieill.) Great Northern Shrike. Winter sojourner, not uncommon.

150. *Ampelis garrulus* (Linn.) Northern Waxwing. Winter visitant, rare. This bird was included in Prof. Snow's earlier catalogue on the authority of a specimen in the Smithsonian In-

stitution said to have been taken at Fort Riley by Dr. Hammond. In November, 1875, Prof. Wheeler took a specimen at Ottawa, Kansas. On Dec. 6, 1879, I had the good fortune of finding a large flock from which I secured three good specimens.

151. *Ampelis cedrorum* (Vieill.) Cedar Waxwing. Occurs irregularly at all seasons. Have seen flocks in December.

179. *Elgiotus linaria* (Linn.) Cab. Common Redpoll. Rare Winter visitor. One specimen secured by Dr. Blachly in January, 1881.

181. *Astragalinus tristis* (Linn.) Cab. American Goldfinch. Resident; most abundant in Winter.

185. *Chrysomitris pinus* (Wilson.) Bp. Pine Goldfinch. Of irregular occurrence. Common in Winter of 1882-3, becoming abundant in March and April. Remained until May. Did not see another specimen until March 18, 1885, when they appeared in large numbers. They are abundant at this writing, May 16.

187. *Centropus lapponicus*, (Linn.) Cab. Lapland Longspur. Winter sojourner. Abundant in coldest weather.

189. *Centropus ornatus* (Towns.) Cab. Chestnut-collared Longspur. Of rare occurrence in Winter; abundant in migration.

205. *Zonotrichia querula* (Nutt.) Gamb. Harris's Sparrow. Winter sojourner; abundant, except in coldest weather. Remain until late in May.

210. *Spizella montana* (Forst.) Ridgw. Tree Sparrow. Winter sojourner; most abundant of our Winter birds.

217. *Junco hyemalis* (Linn.) Scl. Black Snowbird. Abundant Winter sojourner.

218. *Junco oregonus* (Towns.) Scl. Oregon Snowbird. Common Winter sojourner; more familiar in its habits than the preceding, frequenting gardens and dooryards in town.

231. *Melospiza fasciata* (Gmel.) Scott. Song Sparrow. Winter resident; abundant.

235. *Passercella iliaca* (Merrem.) Sw. Fox-colored Sparrow. Migratory, common. Have seen it in December and in February.

237. *Pipilo erythrophthalmus* (Linn.) Vieill. Ground Robin. Summer resident; common. A few remain until late in December.

238. *Pipilo maculatus arcticus*, (Swains.) Coues. Northern Towhee. Abundant migrant. A few hardy males usually winter in this vicinity. Have never seen them in midwinter except singly. They are found in the deepest thickets.

242. *Cardinalis virginianus* (Briss.) Bp. Cardinal Grosbeak. Resident; abundant at all seasons. Sings in January and February in fine weather.

261. *Agelaius phoeniceus* (Linn.) Vieill. Red-winged Blackbird. Summer resident; abundant. Two males seen January 31, 1884.

264. *Sturnella neglecta*. Aud. Western Meadow Lark. Resident; common. A few individuals are seen throughout every Winter.

273. *Scolecophagus ferrugineus* (Gmel.) Sw. Rusty Blackbird. Usually common in December.

278b. *Quiscalus purpureus æneus* (Ridgw.) Bronzed Grackle. Summer resident. A flock of four seen February 13, 1884.

280. *Corvus corax carolinus* (Batr.) Ridgw. American Raven. Rare Winter visitant.

283. *Corvus frugivorus*. (Bartr.) Common Crow. Resident; abundant.

289. *Cyanocitta cristata* (Linn.) Strickl. Blue Jay. Resident; abundant. A few remain in Winter.

300. *Eremophila alpestris* (Forster.) Boie. Horned Lark. Abundant in Winter. The identity of these larks is a subject which presents many difficulties. The gradations between this form and that of the form *leucolama* are so various that it is not fully determined to which our birds should be assigned. A few breed in this locality.

360. *Picus villosus* (Linn.) Hairy Woodpecker. Resident; common.

361. *Picus pubescens* (Linn.) Downy Woodpecker. Resident; common.

372. *Centurus carolinus* (Linn.) Bp. Red-bellied Woodpecker. Common resident.

375. *Melanerpes erythrocephalus* (Linn.) Sw. Red-headed Woodpecker. Summer resident. One seen in December.

378. *Colaptes auratus* (Linn.) Sw. Yellow-shafted Flicker. Common resident.

378a. *C. auratus hybridus* (Baird.) Ridgw. "Hybrid" Flicker. Winter sojourner. Not common.

378b. *C. auratus mexicanus* (Sw.) Ridgw. Red-shafted Woodpecker. Winter sojourner; common.

382. *Ceryle alcyon* (Linn.) Boie. Belted Kingfisher. Summer resident. Occasionally winters in this vicinity.

394. *Aluco flammeus americanus* (Aud.) Ridgw. Barn Owl. Resident, extremely rare.

395. *Asio americanus* (Steph.) Sharpe. Long-eared Owl. Resident; common.

396. *Asio accipitrinus* (Pall.) Newton. Short-eared Owl. Resident; but I have never met with it in Summer. In the Winter it seems more common than the preceding.

397. *Strix nebulosa* (Forst.) Barred Owl. Resident; common.

401. *Nyctale acadica* (Gmel.) Bp. Saw-whet Owl. Not uncommon in Winter.

402. *Scops asio* (Linn.) Bp. Little Screech Owl. Resident; common.

405. *Bubo virginianus* (Gmel.) Bp. Gt. Horned

Owl. Resident; common. Nests early in February.

406. *Nyctea scandiaca* (Linn.) Newton. Snowy Owl. Rare, several have been seen in this vicinity in Winter.

412a. *Hierofalco gyrfalco islandus* (Gm.) Ridgw. Iceland Gyrfalcon. Accidental, a specimen captured here Dec. 1, 1880, by a hunter. The bird is in the collection of Dr. Blackly of this place.

420. *Tinnunculus sparverius* (Linn.) Vieill. Sparrow Hawk. Resident; common, but not often met with in January and February.

430. *Circus hudsonius* (Linn.) Vieill. Marsh Hawk. Rather common resident.

431. *Accipiter cooperi* Bp. Cooper's Hawk. Common resident:

433. *Astur atricapillus* (Wils.) Bp. American Goshawk. Rare Winter visitor.

436. *Buteo borealis* (Gmel.) Vieill. Red-tailed Hawk. Common resident. Have seen them rearing nests in February.

442. *Buteo swainsoni* Bp. Swainson's Hawk. Resident; not uncommon.

447. *Archibuteo lagopus sancti-johannis* (Gmel.) Ridgw. Rough-legged Hawk. Common in Winter.

449. *Aquila chrysaetos canadensis* (Linn.) Ridgw. Golden Eagle. Rare; occurs in Winter.

451. *Haliaeetus leucocephalus* (Linn.) Savig. Bald Eagle. Seen frequently in Winter.

454. *Cathartes aura* (Linn.) Illig. Turkey Buzzard. Summer resident. Sometimes remains in Winter.

460. *Zenaidura carolinensis* (Linn.) Bp. Mourning Dove. Sometimes remains until latter part of December.

477. *Cupidonia cupido* (Linn.) Baird. Prairie Hen. Resident; common.

480. *Ortyx virginiana* (Linn.) Bp. Virginia Quail. Resident; abundant.

594. *Bernicla canadensis* (Linn.) Boie. Canada Goose. Common in Winter until the streams are closed by ice.

601. *Anas boscas* (Linn.) Mallard. Abundant along some of the creeks in open water.

612. *Nettion carolinensis* (Gmel.) Baird. Green-winged Teal. Sometimes seen in Winter.

618. *Ethya americana* (Eyt.) Bp. Redhead. Seen in December when the river was nearly closed by ice.

Many of these species are exceedingly abundant in Winter. This is specially true of some of the Sparrows, the Robin, the Shore-lark and the Lapland Long-spur.

A Catalogue of the Birds of Kalamazoo County, Michigan.

BY DR. MORRIS GIBBS.—PART V.

73. [150.] *Ampelis garrulus*. Linn. Northern or Bohemian Waxwing. A very rare Winter visitant. I have never met with it.

74. [151.] *Ampelis cedrorum*. (Vieill.) Baird. Cedar Bird, Carolina Waxwing. A very irregular species in its migrations. Many claim that this species does not migrate, but years of observation have convinced us that the Cherry-bird, as it is more commonly called here, does migrate several times a year as a rule. Some of the migrations are limited, and occur within one county or even township, as at the time when the birds leave the orchards or villages and sojourn for a time in the deep woods. Again the birds migrate to the south, and are not seen during an entire Winter. The Cherry-birds were not seen by me since last October up to the present date, April 16, 1885, excepting one appearance of a small flock on January 23d. Some seasons the birds are exceedingly abundant throughout almost the entire year, and again few are seen.

The birds are very common some Winters and may be seen almost continually from December 1st to April. After appearing in large flocks during January and February, and even into March, they will disappear for some time frequently, and will not be observed again until the nesting season, which occurs in June and frequently lasts until August.

75. [166.] *Pinicola enucleator* (Linn.) Vieill. Pine Grosbeak. Has only appeared here two Winters in my experience. One Winter was exceedingly cold, the other milder. Abundant while here, and always gregarious. We may term it a very irregular straggler from the north.

76. [168.] *Carpodacus purpureus* (Gm.) Baird. Purple Finch. Not rare in Spring and Fall. It has a beautiful song which is frequently uttered during April. Seen again in September and October. Not known to Summer here.

77. [172.] *Loxia curvirostra americana* (Wils.) Coues. American Crossbill; Red Crossbill. Quite common some seasons, again rare or not seen at all for several years. Arrives generally in late December or January. Occasionally seen in November. During the last Winter the birds were first seen in January. They became quite common in February, and have been observed almost every day in the city in large or small flocks up to the present time, May 10th, 1885. An unsuspecting bird and interesting in its peculiarities. Where and when these birds nest is an interesting

problem. In their usual haunts in the northern woods they undoubtedly have a regular season of the year for breeding, but when far south of their chosen nesting localities, it seems to me that the time must be changed. If the birds build their nests, and rear their young in January, as some attest, the absence or small size of the testes of those specimens taken here in April, would indicate that the species either nested with us in the early part of the year, or that they migrated to the southern part of our State after the breeding season. If, however, the crossbill nests after leaving us for the north, then it must nest late in Summer I think, for the sexual organs of all specimens I have examined in May in several years, in no way indicated a change incident to the functions which are performed by birds generally at this season.

78. [173.] *Loxia leucoptera* (Gmelin.) White-winged Crossbill. This bird is so little known in the county that information concerning it is meager. It may be termed a very rare straggler. Mr. Chapin was the first to observe the white-wing here; a small flock in Winter.

79. [179.] *Ægiothus linaria* (Linn.) Caban. Common Redpoll; Lesser Redpoll. A common irregular Winter visitant. Occasionally appears in early November and in these instances a cold Winter is generally looked for, but such is not always the consequence. Usually appear in December and remain until April 1st. Sometimes remain until April 15th. Always gregarious when here. Frequently pass by us further south.

80. [179a.] *Ægiothus linaria holbolli* (Brehm.) Ridgw. Greater Redpoll. Taken once in the Winter of 1878 by F. H. Chapin. A rare straggler occasionally taken in flocks of the last named.

81. [181.] *Astragalinus tristis* (Linn.) Caban. Goldfinch; Thistlebird; Yellow-bird. A common resident from April to December. A resident some seasons, but not usually I think. Have frequently watched in vain for them during the Winter months. Breeds abundantly from June 20th to Sept. 1st.

82. [185.] *Chrysomitris pinus* (Wils.) Bonap. Pine Linnet or Finch. A straggler and occasional Winter resident. Usually a transient from the north, appearing in October and late April.

83. [186.] *Plectrophanes nivalis* (Linn.) Meyer. Snow Bunting. A visitant from the north. Not seen every Winter however. Usually appears in November and passes by us for more southern quarters. Occasionally remains all Winter. Gregarious, sometimes seen in flocks of several hundreds. Passes north in March and April.

84. [187.] *Centrophanes lapponicus* (Linn.)

Caban. Lapland Longspur. A rather uncertain transient. Not known to remain during Winter. Seen usually in Spring and Autumn thus far. Appears in company with the last named species.

85. [193a.] *Passerculus sandwichensis savanna* (Wils.) Ridgw. Savannah Sparrow. First taken in this country in 1873 or 74. Now common both Spring and Autumn some seasons. Not a regular migrant. Appears in May and again in Sept. Not known to Summer here.

86. [197.] *Poocetes gramineus* (Gm.) Baird. Grass Finch; Bay-winged Bunting. One of the most common representatives of the family. Arrives in late March or early April as a rule, and remains with us seven or eight months. Breeds abundantly.

87. [198.] *Coturniculus passerinus* Bp. Yellow-winged Sparrow. One of the species which has only within the past decade made its summer home in our country. As civilization advances and more of the country is cleared, we may expect to see this Sparrow in greater abundance. At present it is not common. I have only met with a few individuals in upland pasture lots. A summer resident.

88. [201a.] *Ammodromus caudacutus nelsoni* Allen. Nelson's Sharp-tailed Finch. Two specimens were taken by Mr. Wm. Ely, Oct. 5, 1878, and are the only recorded captures in the country. A rare straggler.

89. [204.] *Chondestes grammica* (Say.) Bp. Lark Finch. Only once taken in the country, by Mr. Syke, April 27, '79. Not rare to the west of us but not often found East of our western boundary.

90. [206.] *Zonotrichia leucophrys* (Forst.) Swains. White-crowned Sparrow. Not a rare migrant. Arrive in the latter part of April, occasionally as early as the 15th. Remains with us frequently till May 20. Never known to breed. Found again in Sept. and Oct.

91. [209.] *Zonotrichia albicollis* (Gm.) Bp. White-throated Sparrow. A common transient. Reaches us about the middle of April and becomes common by the 25th. Remains with us a month or more. Seen again in October on its southern journey. A pleasing singer.

92. [210.] *Spizella montana* (Forst.) Ridgw. Tree Sparrow. A common resident from October to April some seasons. A transient from the north usually. Never observed in Summer.

93. [211.] *Spizella domestica* (Bartr.) Coues. Chipping Sparrow. A common species from April to October. Occasionally arrives by March 20, and remains until November. Breeds abundantly.

94. [214.] *Spizella pusilla* (Wils.) Bp. Field

Sparrow. Occasionally arrives by April 1. Generally common by the 15th. Breeds abundantly. Leaves us usually in late October.

95. [217.] *Junco hyemalis* (Linn.) Scl. Black Snowbird. Common Spring and Autumn. Seen throughout the Winter some seasons, but usually a transient from the north. Most abundant in March and October. Not known to nest with us.

96. [231.] *Melospiza fasciata* (Gmel.) Scott. Song Sparrow. Our most common representative of the family. Arrives usually March 10, to 15; occasionally seen by Feb. 22, in early seasons, and I have no doubt it remains throughout the Winter in open seasons as I have found it in December. Still I have never met with the birds at times to prove that they remained throughout the year. Those stragglers that one occasionally meets out of season may be either migrating north or south, and not by any means located. Nests abundantly, rearing two and perhaps three broods.

97. [233.] *Melospiza palustris* (Wils.) Baird. Swamp Sparrow. Not a rare resident during the Summer. Arrives generally the second week in April. Have never yet satisfactorily identified a nest.

98. [234.] *Melospiza lincolni* (Aud.) Baird. Lincoln's Finch. A rare straggler. At least a rare migrant or perhaps merely a transient. Taken first, May 16, 1875, also taken Sept. 28, and Oct. 9, 1879.

99. [235.] *Passerella iliaca* (Merrem.) Sw. Fox-colored Sparrow. Arrives by the second week in March in early seasons. Usually seen first about March 25th. Common by April 10th. Remains with us until May 10th or even later. Again seen in October and remain until November snows appear, and are often found with the Hermit Thresher when there is six inches of snow on the ground.

100. [237.] *Pipilo erythrophthalmus* (Linn.) Vieill. Chewink; Towhee. A common species from April to October. Arrives in the first week of March frequently. Breeds abundantly from May 1st. to June 30th. Nests occasionally taken in August. Departs in October and November.

101. [244.] *Zamelodia ludoviciana* (Linn.) Coues. Rose-breasted Grosbeak. Arrives from May 1st to 6th. Breeds abundantly. Departs in late September usually.

102. [248.] *Passerina cyanea* (Linn.) Gray. Indigo Bunting. Arrives some seasons as early as May 2d, but such a date is decidedly unusual. Sometimes do not reach us until the 17th. Generally about the 12th. Remains until last September usually. Nests plentifully.

THE
ORNITHOLOGIST

—AND—

OÖLOGIST.

A MONTHLY MAGAZINE OF

NATURAL HISTORY,

ESPECIALLY DEVOTED TO THE STUDY OF

BIRDS,

THEIR NESTS AND EGGS.

DESIGNED AS A MEANS FOR THE INTERCHANGE OF NOTES
AND OBSERVATIONS ON BIRD LIFE.

FRANK B. WEBSTER, Publisher,

PAWTUCKET, R. I.

Editor's Notes.

The British Museum will now contain a collection of American Birds scarcely second to that of our own Smithsonian Institute. It is announced that Messrs. Salvin and Godman have given their magnificent collection of Neotropical birds, consisting of about 23,000 specimens, to the British nation. Almost at the same time the museum authorities acquired the Selater collection of about 9,000 more.

In addition to these very considerable additions to the avian possessions of the museum, Mr. A. O. Hume's collection of Indian birds, containing, it is said, some 60,000 specimens, is about to be transferred to the British Museum. It is at present at Simla, India.

We have received from Mr. E. L. Brown, of Durand, Wis., a specimen bird embalmed by his new process. The appearance of the bird is natural and there is no sign whatever, so far, of decay. While we do not think this process, or any similar one, will entirely supersede the present method, it is worthy of attention as useful under certain circumstances. For Reptiles, also for arresting decay where circumstances delay the ordinary process, we

think some such method as the one under consideration, might be valuable.

We are pleased to record the appointment of Mr. J. A. Allen, of Cambridge, Mass., the editor of the "Auk," to the position of Curator of Mammals and Birds in the Museum of Natural History, Central Park, New York.

The Late Dr. Alfred E. Brehm.

The announcement of the death of Dr. Brehm, now some six months since, caused much regret to the friends whom he made during his visit to the United States in 1880, and was felt as a loss by a wider circle to whom his name was well known as a naturalist of present eminence and still greater promise. His father, Christian L. Brehm, was an ornithologist of distinction, and his son early imbibed a taste and an aptitude for similar researches. He was fortunate in his surroundings, and at the early age of eighteen (in 1847) was selected by Baron J. W. von Müller as his ornithological assistant in his African travels. This journey lasted five years, during which they explored Egypt, Nubia and Eastern Soudan, a district the resort of many birds which migrate from Europe for the Winter, as well as the permanent abode of varieties not met with elsewhere. His later travels included Spain (1856); Norway and Lapland (1860); Abyssinia (1862-3); Western Siberia (1876); Spain again (1879); and North America (1880). During this last journey he was attacked by a violent fever.

He leaves as memorials of a life spent in zoölogical research, several works of importance, amongst them his "Thierleben" (animal life) in ten volumes, which is specially noted as showing his "sympathetic comprehension of animals as living beings."

In the death of Dr. Brehm the ornithological world has lost one whom it can ill spare, and whose place will not readily be filled.

Hawking.

BY J. M. W., NORWICH, CONN.

In these degenerate days the falconer does not go afield to fly his belled and hooded peregrine, but with a pair of trusty climbing-irons he himself mounts into the air, and base-born Buteo or true Falcon are alike to him in his quest. Though not counting it an advance on the kingly diversion, yet the modern hawker takes a keen pleasure in spurring his way up the straight bole of a chestnut, with *borealis* screaming overhead and a fresh clutch of eggs for his quarry. You who have tried this royal sport of an April morning, will go again another year, and the present writer can then be pardoned for recording his experience in old fields in successive years.

It has been shown that a late season does not delay the early breeding Raptores. This year Great-horned Owls laid their first egg Feb. 22; my earliest set of Barred Owl was taken March 26, and first Red-shouldered Hawk, April 9. May 10, took six sets of Cooper, and May 17, three sets of Marsh Hawks. So, though the arrival and breeding of Warblers and other small migrants was delayed from seven to ten days, yet the nesting of Owls and Hawks is on the average dates of former records.

I have taken three sets each from one Barred Owl and one Cooper's Hawk this year, and three sets from one Marsh Hawk last year. *B. borealis* does not so often lay two sets as *lineatus*, and with our *Bubo* the limit is usually two sets. 1885 bids fair to be a time for big sets, as I have taken four sets of Red-shouldered Hawks of four eggs each, one set of six Coopers, and have climbed to three Crow's nests holding clutches of six. In early April, I left some homely incubated sets of Red-tails to hatch, but am inclined to think this was a mistaken mercy, for when the lusty young clamor for food, the farmers are liable to follow the over bold purveyors to the nest and shoot both young and old birds. There are in my possession a number of old bullets, buckshot and leaden slugs which I have dug out from the base of limbs forming the crotch of a tree which has been the cradle for generations of Hawks. This murderous brush-house artifice is another departure from the falconry of old.

All my Harrier sets were plain and had the anomaly peculiar to this species and Cuckoos of fresh and incubated eggs in the same clutch. Two pairs of *lineatus* lived in last year's Cooper's nests, and other nests of last season were laid under tribute for dozens of eggs. One set of Cooper's with shell twice the usual thickness, in

addition to markings, presented long calcareous ridges similar in nature to the pimples common on eggs of the Barred Owl. There appears to be no local race of Sparrow Hawks around Norwich, but we may have more than our share of Barred Owls, for I know the nesting places of seven pairs. March 26, April 18, and May 9, were the dates for the three sets from one Barred Owl this year. I have explored Lantern Hill, in Ledyard, and Mt. Misery, in Voluntown, and heavy tracts of isolated timber, but find no trace or tradition of Duck Hawks ever breeding in this region. The Osprey's immense summer homes are still common along shore and in several swamps hereabouts more than a dozen miles from the Sound.

Of the thirty well feathered Hawk's nests recorded this year, many were in low crotches and re-touched Crow's nests, still the average height of the nests of *B. borealis* last April, by actual measurement, was fifty-one feet. The customary season's take of one hundred eggs was easily reached, with the smaller *Accipiter* to hear from, and in this connection it is interesting to note why the bulk of the early-breeding Hawks have comparative immunity from the farmers. The Buteos begin housekeeping just as the chopper takes his ax and sled out of the woods; and the ploughing and planting with their train of duties come on so fast that our rural friend can spare but an occasional Sunday morning for his amateur Falconry.

Swainson's Warbler in North Carolina.

BY H. H. B., NEW BERNE, N. C.

Since reading Mr. William Brewster's exhaustive article on (*Helmintherus swainsoni*) in "The Auk" for January, I have, during my collecting rambles in the swamps around here this Spring, been anxiously searching for sufficient evidences to add this rare and interesting bird to the fauna of North Carolina.

On April 13, I was collecting along the line of the Atlantic and North Carolina Railroad, about a mile northwest from here, the aspect of the country being a succession of cultivated fields interspersed with strips and patches of swamp, the growth being chiefly gum, maple and myrtle (evergreen), with patches of reeds and briars about the edges of the swamps. These thickets are favorite resorts of the Maryland Yellowthroat, White Eyed Vireo, Hooded Warbler, Summer Yellowbird, and several other Warblers. I was standing on a slight rise in a small patch of swamp, and had killed a pair of Maryland Yellowthroats without changing my position, when a

bird that I took to be one of the small Thrushes alighted on the lateral branch of a maple sapling, seven or eight yards from me, and partially hidden by intervening growth. I at once shot it, and on picking it up was overjoyed to find myself in possession of the first Swainson's Warbler I had ever seen, and, as far as I am aware, the first that has ever been obtained north of Charleston, S. C. The specimen was somewhat mutilated, the tip of lower mandible being shot away, the right tarsus broken about the middle and the neck rather badly shot. However, the long sought for prize was obtained, and, although not a first class specimen, it was still quite sufficiently good to admit of absolute identification. I have perseveringly hunted the locality since then, but have, as yet, been unable to secure or even get a sight of other specimens. As before stated, the specimen procured perched on a small branch and was shot at once, giving it no opportunity for indulging in song. The notes of this bird are therefore still strange to me, although I have kept my ears constantly on the alert to detect the, to me, unknown song of (*H. Swainsoni*).

Description and dimensions are as follows:

Helmintherus Swainsoni, ♂, New Berne, N. C., April 13, '85. L 5.55, W 2.80, E 8.70, T 2.05, Tar. .75, Tel. .70. Crown and nape reddish brown, shading into olive, very slightly tinged with brown on back, wing and upper tail coverts with more reddish brown than the back, under parts dusky lemon, crissum white, sides dull olive, sides of breast dull ashy olive, superciliary stripe dirty white, legs and feet flesh colored.

Now that one specimen has been procured, I have great hopes of adding more before the Summer has gone, as I imagine this locality to be favorable for the nesting of this bird.

Cassin's Purple Finch.

(*Carpodacus cassini*.)

BY H. G. SMITH, JR., DENVER, COLORADO.

This Spring the writer first made the acquaintance of Cassin's Purple Finch. It was on the morning of Feb. 26th—a bright, warm day for the time of the year that I took my gun and started for the woods. I had scarcely entered them when the loud clear song of the House Finch, (*Carpodacus frontalis*), came to me from the air above, and looking around I saw three individuals about to alight in the top of a cottonwood not far off. Thinking they were worth trying for, I approached and succeeded in bringing two of them down. On picking them up I was surprised at their large size, and it immedi-

ately occurred to me that I held in my hand no less a bird than the female of Cassin's Purple Finch.

Placing them carefully in my game-bag, I again started on and soon had the satisfaction of bringing down a male, which from what I had read of the species—cleared away all doubt in my mind as to their identity. Securing my bird, I again started, and while crossing a field grown up with weeds, I discovered several more females in company with Tree Sparrows, and on further notice discovered a beautiful male.

Moving cautiously along to get within range, what was my surprise when at least twenty individuals of the species flew up from among the tall weeds and alighted in a box-elder not fifty feet from me. I stood motionless, observing the various movements of my new acquaintances with the feeling every ornithologist has when he sees before him a species he never saw alive before. My Finches soon rose into the air and left the field with loud cries of alarm. Looking around I discovered the destroyer of my beautiful picture in the shape of the Great-northern Shrike or Butcher Bird, who came sailing in upon them, bringing consternation with him.

Later in the day, I saw a flock of one hundred or more which alighted amongst the weeds which were from six to eight feet high. I obtained eight specimens, and it is needless to say I felt more lenient towards the Shrike on going home that night.

On March 3d, I made another visit to the same place and found the Finches in flocks of hundreds. In the early morning, flocks kept coming down from a great height and settling upon the sun-flower stalks, feeding on the seeds.

I had no opportunity of visiting the place again until March 25th, when I found the majority had departed. I however saw a number of flocks of fifty or more, but on April 4th none were seen at all.

HAWKS IN GREENFELD, MASS.—On the 13th of April I saw a Rough-legged Hawk in the possession of a boy, which I bought and set up for the Society here. It is, I believe, in the light plumage. The earliest Hawk's eggs collected here this Spring were on the 19th of April, Red-shouldered, three in number and with very pretty chocolate blotches. On the 28th of April, six members of the Natural History Society went to Mt. Sugarloaf, and made a successful trip, getting a set of four beautifully colored eggs. The nest was in the same place as the last we secured the eggs from last season.—S. W. Comstock.

Notes on the Birds of Manitoba.

BY ROBERT MILLER CHRISTY.

(The Zoologist, April, 1885.)

Continued from page 78.

Before the beginning of September the Crow, (*Corvus frugivorus*.) did not seem to be particularly common; but after that it became more noticeable. Large flocks frequently flew over, their loud hoarse croak being audible for long distances over the prairie. On September 7th a specimen was brought in having a curious malformation of the bill, which was evidently due to a gun-shot, as the right humerus had also been broken. The upper mandible was bent a good deal to the left, as well as having the tip strongly turned downwards. A notch had been worn in the side of the lower mandible where the upper one crossed it, but the former was normal in all other respects. As the bird was only wounded slightly in the wing, we kept him alive in order to learn how, with such an awkward instrument for a bill, he contrived to take his meals; for the fine condition he was in clearly showed that he had some means of so doing; and in a few hours he was tame enough to show us how. We placed some pieces of bread upon the floor, which, being hard and flat, probably puzzled the bird more than if it had been soft or uneven; but, by standing directly over them and putting down his head till it was almost between his legs and the crown nearly on the floor, he contrived to get the piece of bread between his mandibles.

The Whiskey Jack, (*Perisoreus canadensis*.) probably breeds in the dense tamarac swamp south of Carberry, as a young specimen was shot there by Mr. Seton in August.

The Blue Jay, (*Cyanocitta cristata*.) is common, but appears to be migratory,—partially at least,—leaving in Winter, though resident farther south.

The well-known King-bird or Tyrant Flycatcher, (*Tyrannus carolinensis*.) is abundant in Manitoba. A more fearless, inquisitive, pugnacious, and warlike bird it is difficult to imagine. Often when I have shot a bird as a specimen, up has flown a King-bird with a manner which gave him the appearance of saying—"Now, what's going on here?" To see a King-bird dash at and attack a huge Harrier, for no other purpose whatsoever than to have a fight, is a thing of common occurrence, and the Harrier always tries to avoid and escape from his assailant. The King-bird breeds in the low scrubby oak trees which cover the sand-hills, building, like the Shrike, a nest consisting largely of the stalks of a species of *Gnapha-*

lium. After the young are able to fly they often live round the settlers' houses on the open prairie, but about the end of August they all leave.

Among the trees on the sand-hills and in the bluffs the Night Hawk, (*Chordeiles popetue*.) is abundant, and makes itself very conspicuous towards evening by its loud scream, by booming, and by displaying during flight the unmistakable white patch on each wing. Not unfrequently it may be seen on the wing at mid-day; and it always makes an appearance long before sunset, sailing about at a great height and screaming frequently. After flying awhile over the head of any intruder, it suddenly spreads its wings and, giving a wide swoop downwards, emits a loud booming noise, which has gained for it in some parts of America the name of "Bull Bat." That this noise is made over one's head in order to threaten, or intimidate seems to me pretty certain, but I have also, I believe, heard it emitted at a distance, without any such object. It breeds commonly among the trees on the sand-hills. One day early in August we found a nest, or rather two young ones—for nest there was none—about three days old, with the egg-shells lying near. Though so young, one of the nestlings, which we afterwards proved by dissection to be a male, was very pugnacious, and snapped his bill menacingly when touched; the other was perfectly quiet, so we concluded, though we could not prove it, that it belonged to "the gentler sex." While we were at the nest the old birds were, as usual, very solicitous for the safety of their young, settling on trees, fallen logs, the ground, and fluttering round to draw off our attention. The number of old birds began to get very much less by the end of August, but a few were nevertheless seen until well on into September—one as late as the 11th. After the migration commenced they were not unfrequently seen in the evenings flying over in large straggling parties, circling about as they proceeded. These parties usually travelled southwest, I believe, though this is not the direction usually chosen by the other birds of the district when moving south.

The Whip-poor-Will, (*Antrostomus vociferus*.) differs from its near relative, the Night Hawk, in several particulars. It seldom leaves the woods and comes out onto the open prairie; and, even among the trees, it is seldom or never seen sailing about high overhead during daylight. It is also a much slyer bird; and, although its highly remarkable far-sounding voice may often be heard, it needs great caution to get within a sufficiently short distance to see the performer. About the end of August all the Whip-poor-Wills seemed to have departed, and I was therefore considerably

surprised to hear the unmistakable voice of one in the woods near Carberry on the evening of September 11th. This bird also is very solicitous for its young. Going one evening into the woods to fetch home an easel Mr. Seton had left when sketching, we were almost mobbed by a pair, which kept on for some time, tumbling about among the bushes and settling on the charred logs of trees felled by the fire. We must have been very close to the nest; but it was too dark to find it, though we felt the ground all round.

Several species of Woodpecker are common in Manitoba, notably the Golden-winged, (*Colaptes auratus*), which breeds frequently in holes in the trunks of Poplar trees in the bluffs.

The Red-headed Woodpecker, (*Melanerpes erythrocephalus*), also breeds but is much less common.

The Short-eared Owl, (*Asio accipitrinus*), seemed to be decidedly uncommon. On the evening of August 20th, 1883, just as it was getting dusk, I fired at one sailing overhead. I thought I had missed him, but it was just light enough for us to think we saw him alight in an open spot in a neighboring field, so we decided to go and look on the morrow; however, the following day was so windy and wet that we did not go till the afternoon of the day after, when we were surprised to see the bird rise, apparently unharmed. It fell to Mr. Seton's gun, and after a careful examination we could not find that it had received any previous injury, except a slight graze on one wing; yet it had been foolish enough to sit moping in one spot for over forty hours with nothing to eat except one large dragon-fly and a great brown cricket, as we afterwards found by dissection.

The Marsh Harrier, (*Circus cyaneus hudsonius*), is a very common bird throughout Manitoba, and may often be seen sailing over the prairies, the sleughs, or the wheat-fields. One morning late in August I remember counting a dozen round one house. It must breed there, but Mr. Seton has never discovered a nest. Nearly all the individuals I saw were in the brown plumage; only three or four wore the adult bluish ash-colored dress, but Mr. Seton says that adult specimens are much more often seen at the time of the Spring migration. This bird often comes and inspects the settlers' chickens, but seldom carries off any except very young ones—gophers, mice, and grasshoppers being its usual prey. It is exceedingly easy to shoot, and one or two dead ones may often be seen lying around a farmer's house. The Harrier became a much scarcer bird as September wore on.

The Turkey Buzzard, (*Cathartes aura*), is probably now a less common bird than when the

Buffalo was an inhabitant of the prairies, but is still not unfrequently seen, especially if there be a dead horse or other animal in the neighborhood. Its powers of flight are magnificent.

On the evening of September 4th a flock of sixteen noisy Wild Geese flew with a swift flight over Carberry to the southward. They formed the vanguard of the great army of migratory birds which, going northward in the Spring to breed in myriads on the shores of the Arctic Sea, returns south again in the Autumn with its numbers increased by the yearling birds.

After the date mentioned, the migration among wildfowl and raptorial birds became much more marked. Goshawks, (*Astur atricapillus*), though formerly unseen, became fairly common.

The Peregrine, (*Fulco peregrinus*), hitherto scarce, was now the reverse, though still not very numerous. On the 11th one perched on a fence close to the house; I was just on the point of firing at him with a rifle, when he rose; then, after sailing once over the chickens, he hovered over them for nearly half a minute as cleverly as any Kestrel could have done—indeed, so stationary in the air was the bird that I essayed a shot, but the bullet missed.

About this time, too, Buzzards became much more numerous. On the 14th an old male specimen of Swainson's Buzzard, (*Buteo swainsoni*), in very ragged plumage, was brought to me.

The migration among raptorial birds at this period was made still more obvious by the decrease, as already mentioned, of the Harriers, and by the sudden increase in the numbers of the beautiful little American Kestrel, or as it is always called, the "Sparrow Hawk," (*Fulco sparverius*). Although I had during the Summer found this in fair abundance in the woods and among the trees growing on the sand-hills (where it breeds in the deserted holes of the Golden-winged Woodpecker), it became far more abundant round Carberry on September 7th, and on that day alone I saw more than during the whole of the rest of the time I was in the country. All day long they were around the house, sitting tamely on fence-posts and buildings, and often chattering like their European brothers. At one spot about a mile from the town, where there was a cluster of trees, I found what I can scarcely call by any other name than a flock of them, as from twenty-five to thirty remained there the whole day. For several days after the 7th they were fairly numerous, but all disappeared about the middle of the month. The few that were shot had been feeding on grasshoppers only, and on one occasion I watched through a telescope a bird that was catching grasshoppers among some potatoes.

A most comical affair happened one day in connection with three Goshawks. A friend of mine had shot a Harrier, and left it near his house. Some time after, as some chickens were feeding on the maggots in the body, three Goshawks appeared on the scene and quickly swooped at the birds, to all appearance carrying one off to a neighboring field. Mr. Seton, who followed to avenge the death of this supposed hen, soon shot two of the Goshawks, when he found that, instead of carrying off a hen, they had possessed themselves by mistake of the putrid and dried-up body of the Harrier.

Numerous as were many of the larger Hawks at this time, I was told that they were far more so at the time of the Spring migration northwards; so it appears probable that for some reason they follow different routes upon the two journeys, as is often observed in England. The same remark probably applies to the Whooping Crane, (*Grus americana*), for, although in the Autumn I did not see one, it is said to be common in Spring-time.

The American Bittern, (*Botaurus mugilans*), is pretty common in the moister parts of the country,—near the Red River, for instance,—where I have often seen it disturbed by the passing train.

On August 30th a friend shot a young specimen of the Passenger Pigeon, (*Ectopistes migratorius*), as it sat upon a tree near Carberry, but this was the only specimen seen during my visit.

No small portion of the Manitoban settlers' diet is formed of the flesh of the Sharp-tailed Grouse, (*Pediocetes phasianellus*), always known as the "Prairie Chicken." To this bird, which is resident in Manitoba throughout the year, Mr. Seton has devoted much attention, and has elucidated many interesting points in its natural history. The nest is usually formed in long grass, generally near trees. In it the hen deposits fourteen to sixteen eggs, which, curiously enough, are rather smaller, as Mr. Seton points out, than those of the "Quail" (Bartram's Sandpiper), a bird just one-eighth of its weight. The pairing is carried on in a very absurd fashion, parties of from one or two to twenty assembling in the early morning on some small hillock, and there dancing in a manner which is most ludicrous to behold. About the middle of August, or earlier, a row of stiff bristles commences to grow on each side of the toes of both old and young. These are fully grown by October, and henceforth the birds are provided with snow-shoes for use during the Winter. In Spring these bristles entirely drop off. The birds spend the Summer out on the open prairie, and while it lasts they seldom perch on trees; but in Winter they all adjourn to the bluffs and woods, and spend the time there feeding on the buds of the trees,

and at night diving down into the soft snow-drifts for warmth and shelter. Although they bury themselves to the depth of about a foot, many are killed by wolves and foxes, whilst others are fatally imprisoned should a slight thaw and subsequent frost harden the surface of the drift. In early Spring, before the snow is gone, they emerge again upon the prairies where the hips of the wild prairie-rose, which are held up above the snow, provide them with food, while the excessively hard seeds the hips contain act as a substitute for grit in the stomachs of the birds. Early in May they feed, like many other prairie animals, upon the blossoms of the abundant sand-flower or prairie anemone, *Anemone patens*, var. *nuttalliana*; and later on they consume quantities of grasshoppers, together with seeds and berries, but they never, so far as Mr. Seton has observed, touch grain.

The Kildeer Plover, (*Egialites vociferus*), is not uncommon round some of the lakes.

On August 3d we shot several specimens of the Lesser Yellow-shanks, (*Totanus flavipes*), and one of the Greater Yellow-shanks, (*T. melanoleucus*), round a lake near Carberry; they were clearly on migration, as they were the first of their kind seen.

On July 10th, 1884, I shot a specimen of the Solitary Sandpiper, (*Rhyacophilus solitarius*), at Maple Creek, 597 miles west of Winnipeg; it was doubtless breeding. In the dry bed of the creek I also caught a nestling bird, which was probably of this species.

During the Summer no bird is more familiar on the Manitoban prairies than the Upland Plover or Bartram's Sandpiper, (*Bartramia longicauda*), commonly there known as the "Quail," from its note. Surely no bird ever differed more completely from the generality of its relatives than this! It is a Sandpiper which does not appear to frequent marshes, which breeds habitually on the dry open prairies, and which is frequently to be seen perched among the branches of trees. Its tameness is excessive. Often when driving over the prairie I have seen it remain within three yards of the passing vehicle without the slightest concern. When on the wing, it offers a shot so temptingly easy that few can resist. Its note is a highly remarkable one, not easily forgotten when once heard. Dr. Coues well describes it as a "long-drawn, soft, mellow whistle, of a peculiarly clear, resonant quality." It breeds abundantly on the open prairie, and I have several times caught the young in down. The majority left Manitoba towards the latter end of August, but I was several times surprised at hearing or

seeing a belated pair until quite late in September.

The Carolina Rail, (*Porzana carolina*), is common during the summer among the reeds and rushes round the lakes, where it also breeds.

In the open and less frequented parts of the country, like the sand-hills south of Carberry and the prairies of the Upper Assiniboine, the Sand-hill Crane, (*Grus pratensis*), breeds pretty commonly. They often feed in the swamps, and their loud, coarse, rattling croak may be heard for long distances when their solitudes are invaded. Their speed when on foot is very considerable. I one day drove across a moist portion of country after a pair, which for a short time seemed inclined to rely for safety on their legs rather than on their wings. During September small parties of from ten to twenty were seen almost daily passing over southward at an immense height, and attracting attention by their loud croaking, which gradually died away in the distance as the birds disappeared.

During the whole of the Autumn the southward migration of wild fowl was very noticeable. Until late in September small flocks of from twenty to thirty Wild Geese were often to be seen flying over, generally in the shape of a well-marked V. They generally went towards the south or south-east, which latter especially is, I understand, the general direction of the autumnal migration over Manitoba; so that it seems probable that the birds in coming from the extreme North, follow the line of great lakes extending from the Great Bear Lake to Lake Winnipeg, afterwards following the valley of the Red River, crossing the narrow watershed into the valley of the Mississippi; and wending their way along it still further to the southward. During this Autumnal movement the number of ducks frequenting the lakes and ponds throughout Manitoba is prodigious. I shall not soon forget the hundreds I saw on the innumerable ponds between Rapid City and the Oak River, whilst on an excursion towards Fort Ellice, in the middle of October, 1883. Yet those I saw must have been as nothing compared with the abundance to be seen in some other places. A friend who had several days' shooting at Totogon, near the South end of Lake Manitoba, about the end of September, describes the ducks as being so numerous that only the terms "acres" and "millions" could adequately express their abundance. The majority were Mallards, (*Anas boschas*), but there were also Blue-winged teal, (*Querquedula discors*), Green-winged Teal, (*Q. carolinensis*), Scaups, (*Fulix marila*), and others. The Mallard, with various Shovellers, Scaups, Pintails, and Teal, breeds regularly in the lakes and sloughs. When traveling towards Win-

nipeg by the line running northward from the United States boundary on June 13th last (1884). I saw many newly-hatched broods of ducklings, both Teal and Mallard, swimming about in the ditch beside the track; the old birds rose and flew off as the train approached. At least two species of Tern breed very abundantly on the islands in some of the larger lakes, while several Grebes are not uncommon in the same situations.

In conclusion, I will only add that there still is in Manitoba a large field for ornithological work. If only a few of the many young men of good education who have recently emigrated thither could be persuaded to turn some of their attention to the study of its birds, many highly interesting facts would certainly be brought to light.

Brief Notes.

PECULIARLY MARKED EGGS OF THE GOLDEN EAGLE.—I have just received a set of two Golden Eagle's eggs that are different from anything I ever saw before. They were collected from a nest that I have known of for several years past, and though it has been robbed several times, both of eggs and young birds, the old Eagles return every Spring to the same nest, which is placed on a ledge, on the side of a cliff, the only manner of reaching, is to be lowered over the edge of the cliff by a rope. The set just mentioned were taken in March of this year, eggs were fresh and old bird was on the nest when visited by my collector. The peculiar thing in regard to eggs of this clutch is that they are quite heavily marked with light brown spots and some lilac shell markings. The larger is 2.89x2.40, and shaped like the egg of *carolinensis*, No. 19, pg. 11, of Brewer's Oology: The smaller is like Red-tailed Hawk, No. 17, pg. 11, of same work, and coloring and place of markings similar to that egg, the ground being white, however; size of this egg 2.81x2.34, and markings on smaller end. No. 1 has the markings heaviest on the larger end, where they become confluent, concealing the ground color, spots growing fewer and more scattered toward the smaller and more pointed end of the egg. A year or two ago I had another egg from this same nest (the birds laying but one) which was white and without even any lilac shell spots. It was badly broken, having been sent to me unblown, so that I did not measure it. The inside of the shell was a bright green. I have another egg of same species taken in Wyoming in 1871, which is rounder in shape and is covered with shell spots of lilac and very light brown, which I supposed were dirt, until I found I could not remove them with a brush and soap and water. This egg was in a

nest with a young Eagle nearly fledged; egg was addled, size 2.84x2.34. I should like very much to know if any one has a set of Golden Eagle's eggs that are similar to those described.—*Snowdon Howland, Newport, R. I.*

CAPTURE OF A RED-NECKED GREBE, (*Podiceps holbolli.*) IN WESTERN ONTARIO.—On the 11th of February, 1885, on bank of river Thames, two miles north of Plover Mills, county of Middlesex, Ontario, an individual of the above species was captured under the following circumstances. Mr. Hartwick, a farmer, noticed near his house the bird in question, sitting on a snow bank, and completely enveloped in ice. Although alive, its wings were so firmly fastened by the frost that it was compelled to submit to be taken by hand. Carried to the house, it was placed in water, when it at once revived, dipping, diving and preening its feathers in the liveliest manner. It refused, however, to eat any of the food placed before it, with the exception of some fir leaves (*abies*) of which it partook sparingly. Placed outside the house and allowed full liberty, it refused to leave, walking deliberately, nonchalantly and in the characteristically erect position back to the place which had proved such a pleasant retreat from the wintry storm. At the end of its third day in captivity the poor Grebe died, after which event it came into the possession of my friend, Mr. S. R. Reynolds, who has had it mounted and placed in his collection. It should be stated that on the day previous a flock, estimated to comprise ten or a dozen birds of presumably the same species, was observed flying low in the vicinity. They appeared much confused, dispersing and gathering together alternately, and uttering cries of distress. The weather was extremely cold.—*Robt. Elliot.*

BIRDS CONFUSED BY CITY LIGHTS.—I have often read of birds becoming confused by the lights of a city on a dark night, but never had the good fortune to witness it before May 7th, 1885. The night was very dark, with a drizzle occasionally, but no wind; at 11.15 I heard a bird, when on going out to listen, I found birds were calling on all sides of me, apparently dazed by the glare of the gas. In greatest numbers were the Thrushes, Tawny and Wood; there were also Purple Martins, Baltimore Orioles, Sparrows, Warblers, Spotted Sandpipers and ducks. Two Thrushes became bewildered around the steeple of a church opposite me, and only left when two of us went over to see them.

The Sandpipers were most vociferous, though from the number of notes heard I could not be certain that there was more than one bird, which

might have been describing irregular circles with a centre near where I was standing, and repeatedly giving its note, both full and partial.

The Ducks were heard quite often, and from the amount of noise made by their wings, coupled with a knowledge of what Ducks were around London at the time, I should say they were Little Blue-bills. It was impossible to identify the Sparrows and Warblers, but I thought I could recognize the sharp *cheep* of the White-throated Sparrow, and as they were in the country around us at that time, it is not impossible that this conjecture is correct. I stayed outside till 12 p. m., when the confusion was undiminished, and lying with the window open, the last sound I heard before going to sleep was the nocturne of the Spotted Sandpiper. 6.30 a. m. next day found me out looking for remains of the night's entertainment, but the only trace to be seen was a solitary Wood Thrush in the garden. Several persons spoke to me afterwards of the presence of the birds above all the city that night, and it would be interesting to know if any one near Ontario observed the same occurrence.—*W. E. Saunders, London, Ont.*

NOTES FROM CALAIS, MAINE.—SNOWY OWL.—A fine specimen of the Snowy Owl was killed at the mouth of the St. Croix River last winter, but but as the possessor attached no value to the bird, it was destroyed.

Pine Linnet, (*Chrysomitris pinus*). During the early Spring months of last year this little bird was very plentiful with us, every tree seemed full of them, and they rivaled our most abundant birds, such as the sprightly little Snowbird, in numbers. This year they are 'conspicuous by their absence.'

The raptorial birds are exceedingly well represented here this season both in species and individuals. The Hawks are very bold and numerous, fearlessly coming into the outskirts of the city in search of their prey. In the last of the Winter quite a number of Saw-whet Owls were found dead, in most cases within or near some barn or other building, where they evidently killed themselves by flying against the walls, as in one instance the Owl was seen in the act of striking. In other cases the Owls were found in some open field, or where there was but few trees. All the birds I examined fairly swarmed with parasites. Is it not possible that these parasites, combined with the scarcity of food during the past severe Winter, so enfeebled the birds that a very slight blow while flying about would kill them or that in some cases they literally starved to death? A few Richardson's Owls were taken.—*Louis M. Todd.*

WHAT IS THE BEST GUN FOR COLLECTORS.—In your April number of the "O. and O." I notice in the article headed "Hints to Collectors," this sentence, "Do not buy a cane gun or one with a skeleton stock, they are a delusion and a snare." In regard to the former I have nothing to say but as the article referred to was penned by Johnnie and not by John, I infer that he is not too old to learn.

I have a Stevens' 38-bore shot gun with skeleton stock, with which I have taken a Broad-winged Hawk, two Grebes, a Kingfisher, besides numerous Jack-snipe and other smaller birds, and could not be tempted to carry a full stock gun while collecting. And in regard to Johnnie's \$25 outfit, mine would not exceed \$15, and I use it in preference to a \$55, 16 guage double breech-loader which I have.—*E. V. Clemens, Ansonia, Ct.*

ALLIGATORS.—We have during the past week obtained two Alligators within six miles of here, one 9 ft. 3 in. in length and the other 8 ft. 2 in. Until we procured one last Fall of 10 ft. 6 in., they were considered almost unknown around here. We hear of other large ones about. Is not this about their northern limit, and can any of your readers give instances of their being obtained further north than this?—*Clarke & Morgan, New Berne, N. C.*

New York and Science.

An interesting address was recently delivered by Dr. C. H. Merriam at the dinner given by the Linnæan Society to Mr. J. A. Allen on the occasion of his coming to New York to assume the curatorship of birds and mammals at the Central Park Museum. In the course of his remarks, Dr. Merriam alluded to scientific work in New York early in its history, and to the fact that naturalists and scholars who have labored here failed to receive that support from the people which is so essential to permanent progress. Continuing he said: "That this cannot be attributed to lack of ability, enthusiasm and earnestness on the part of the workers themselves is clear from their character and writings. Of the founders and early members of the Philosophical Society, and of the Lyceum of Natural History, but one naturalist remains, the veteran ornithologist, Mr. George N. Lawrence, who has spent a fruitful lifetime within the precincts of this city. His name and labors are known and honored all over Europe, and yet but a few of our citizens are aware of the extent and importance of his writings. He has outlived his comrades, and for many years has toiled alone, away from the stimulus and support of sympathetic associates. It is impossible to disguise the fact that these men—men whose untiring labors have left a lasting impress upon the science of the nineteenth century—have been unappreciated by their fellow-citizens. The city and the times were not yet ready. The first great effort to convert New York into a center of learning and culture failed. The Philosophical Society has long since passed out of existence, and the old Lyceum of Natural History has been transformed into the present Academy, which is devoted chiefly to the physical sciences. Leaving out of consideration the more or less constant progress that has been made in the physical sciences, literature and the fine arts, and

confining ourselves to the branches of knowledge commonly spoken of under the somewhat indefinite heading, 'Natural History,' it may be said that the first period of activity reached its maximum development about fifty years ago, when the Lyceum was in its most flourishing condition, and that the second period of activity began with the organization of Linnæan Society in March, 1878. Between the two was an interval of general inactivity, broken only by the labors of Torrey, Lawrence, Prime, Sanderson, Smith and that distinguished explorer and naturalist, Professor John S. Newberry, now one of the most eminent of living geologists and paleontologists, who for the past nineteen years has honored our city by his presence. For some time Professor Whitfield has been at work upon the fossil invertebrates in the American Museum of Natural History of this city, and has published several valuable bulletins containing the results of his labors. This museum has long been in possession of mammals and birds of value. To guard these from injury, and also (let it be hoped) to promote original work, its trustees have finally secured the services of one of the foremost of American naturalists. Foreign naturalists have hailed this movement with expressions of unfeigned joy, and we can but regard it with the utmost satisfaction. We congratulate ourselves both upon the accession of so distinguished a person as Mr. Allen, and upon the significance of the fact of his appointment. The citizens of New York, surfeited with the cultivation of purely commercial interests, have come at length to look for something which will adorn their city with more lasting monuments—which will enable it to take rank with the other great cities of the world in promoting the advancement and diffusion of knowledge by the encouragement of natural science. The more thoughtful of them are slowly but surely arriving at the conviction that no true progress in higher civilization can be made until science, literature and the arts receive the hearty support of the people and of the commonwealth.—*Forest and Stream.*

CORRESPONDENCE.

PECULIAR EGGS OF *SCOPS TRICHOPSIS*. On the 11th inst. I took a nest of *Scops trichopsis*, containing five eggs. In size and shape they are identical with several other clutches of the *S. trichopsis* now in my possession, but instead of being white in color they resemble the eggs of the *Falco sparverius*, being blotched all over with dark brown spots, especially towards the larger end around which the spots and blotches run in great profusion. Now tell me, please, could the eggs so marked be the result of a cross between the two birds above named? I am not mistaken in the eggs being those of the *S. trichopsis*, inasmuch as I took a female *Scops* off of the nest. I also, the same day, took several nests of the *F. sparverius* from the same vicinity and both those of the *Scops* and *Sparverius* were taken out of Woodpecker's holes in the (Saguara) Giant Cactus, which fact led me to think that perhaps the eggs in question may have been the result of a cross between the two.—*Herbert Brown, Tucson, Ariz., April 22, 1885.*

[Perhaps some of our readers may be in possession of facts which would throw light on this matter.—ED.]

LARGE SET OF BARN OWL'S EGGS. P. E. Kent, Poway, Cal., writes us, "While on a collecting tour on April 1st, I found a fine set of Barn Owl's eggs, (*Atuo flammeus americanus*) The nest was placed in a Sycamore tree about twenty-five feet high, where a large limb had been blown out, and having rotted had formed a hollow one foot deep and two feet in diameter. The eggs were eleven in number and were in all stages of incubation, from perfectly fresh to those that were well advanced, but by carefulness in blowing, I succeeded in getting them in prime condition. Would like to ask if any one has a larger set?"

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No. 7

On the Seasonable Changes of Plumage in Birds.

BY ALFRED CRAWHALL CHAPMAN.

No doubt naturalists have frequently observed the great dissimilarity in the seasonal plumages of many species of birds. This is strikingly noticeable in the case of the Golden Plover. On the Northumberland moors the Golden Plover may be said to breed commonly. Small parties of them may be seen frequenting the lower grounds all through the Winter. About the beginning of February the change from the white breast of Winter to the black of Summer commences, and gradually increases until the bird has attained its full Summer dress. When on the wing these dark-breasted birds appear to be much blacker than they really are. Having shot what appears to be a very black-breasted bird, one finds that many of the white feathers of Winter are still visible, giving the bird a checkered appearance.

What appears most strange is that these birds never reach what is considered the typically adult Summer plumage of the Golden Plover. It matters not at what period of the breeding season, this undeveloped plumage is always conspicuous. Now, I would ask, what is the natural cause of this?

Even in Shetland the Summer dress of the Golden Plover is much darker, *i. e.*, more developed than in Northumberland; but if we visit Lapland or Siberia, we find there the Golden Plover in what we consider their typically adult Summer dress. If they had to endure greater cold or stress of weather at their northern breeding-stations, one could perhaps account for the more adult form of plumage by a greater thickness of feathers; but such is not the case. Indeed, I venture to say that the Northumberland birds have, if anything, the greater cold to endure. Perhaps it is that the birds which frequent our moors in Winter are not the birds which remain to breed with us; possibly all these birds

migrate northwards to Lapland and Siberia, their places being taken by another and different set of birds, which have spent their Winter in more southerly latitudes, and which make our counties the northern limit for their Spring migration. This is a theory difficult to solve. It may be that the reverse is the case, and that the birds which Winter also remain to breed with us, and that there is a great migration from the Mediterranean direct to the morasses and tundras of Siberia.

I think, perhaps, this is most likely to be the case, as many specimens of birds which seldom breed south of the Arctic circle are regularly obtained in their adult Summer plumage in the very south of Europe, about the middle of May.

My brother, Mr. Abel Chapman, shot Curlew Sandpipers, (*Tringa subarquata*), in their rich rufous plumage, as well as Grey Plovers, (*Charadrius helvetica*), in adult Summer dress, on the Guadalete, near Jerez, in Southern Spain, on May 8th, and these birds would have about 3000 miles to travel northwards before they could find a suitable breeding-ground; although perhaps it is not necessary to mention here that the Curlew Sandpiper is, I believe, the only British bird whose nest has never yet been discovered. The rapidity with which birds execute their Spring and Autumn migrations must be something marvellous, for I have shot Bartailed Godwits on the coast of Northumberland returning from breeding as early as August 11th, while by the 25th most of the northern breeding species, such as Greenshanks, Reeves, Sanderlings, Knots, Turnstones, &c., can be obtained.

On comparing skins of the Brambling, (*Fringilla montifringilla*), shot in the Dovre Fjeld in Norway, with those obtained at a similar season in East Finmark, I notice the same relative difference in their stages of mature plumage as I have remarked in the case of the Golden Plover. The Finmark birds have the head, neck, and upper part of the back, of a rich glossy black, like our common Rook, whilst the Dovre Fjeld birds have the ends of the feathers edged with buff, show-

ing the undeveloped change from their Winter plumage. This would seem to indicate that the further north a bird goes to breed, the more perfect must the condition of the bird become, each feather seeming to obtain greater vitality than in the more southerly species, and, as a consequence of this, the gradual change of color is extended further down each feather, till the whole of the feather, with the exception of that portion which wears off, becomes black. Probably the change from Spring to Summer and from Summer to Autumn plumage is effected both by means of change of color in the feather itself, and by moult, according to the physical condition of the bird at the time.

It seems probable that the theory which holds good with regard to the changes of plumage in the true Falcons applies also to the case of the common Buzzard, (*Buteo vulgaris*), and perhaps the following notes on the plumage of the latter species may be of interest:

During the months of May and June, 1878, my brother and I obtained many beautiful specimens of both old and young Common Buzzards in the large woods near Hesse-Cassel, in Central Germany. They seemed to be very common there, probably because they were quite unmolested.

On May 11th we found a nest containing two down-clad young, which were pure white, and one egg hatching; both the old birds were a uniform dark-brown, the male being much the smaller of the two.

On May 26th we found two nests, each containing two eggs; in the one case nearly hatching, in the other quite fresh. We trapped the old birds, and found them in similar plumage to those already described.

On June 8th found a nest containing two half-grown young. Their breasts were a spotless cream-color, their backs mottled not unlike an unfledged Lesser Black-backed Gull. We reared these two young ones; by the beginning of July they had moulted their nest plumage; the breasts and under parts coming mottled brown, but divided by broad pale yellow stripes running longitudinally down the back. The tails were already a fine russet color, barred with brown. We kept these two birds till the Autumn of the year after they were hatched, and at this time they still maintained the plumage of the first moult unchanged. Their irides, however, which had been a pale transparent blue, were now gradually turning yellow. This change in the color of the irides seems to be; in some cases, contemporaneous with the change of color in the plumage of the bird's head, and is especially conspicuous in the case of the Marsh Harrier, (*Circus aruginosus*)

and Red Kite, (*Milvus iclinus*). In both of the latter the irides change with the head, being nearly black when the head is very dark-colored (as in the young Marsh Harrier,) hazel when the head is brown, and pale yellow, approaching to white, when the head becomes white, as in the old birds.

With regard to the plumage of the parent birds of the two young ones which we reared, nothing could exceed the beauty of the male. With the exception of a fawn-colored bar across the breast, the dark primaries and secondaries, a few bold blotches of brown on the back, and a golden-colored tail barred with brown, his whole plumage was nearly pure white. The female had a cream-colored breast and under parts, a handsome brown and white checkered back, the head brown, and the tail as in the male.

Though I have seen a good many nests of both the Rough-legged and Common Buzzard, I never saw the former nesting in a tree, or the latter otherwise than in a tree, usually rather high up. All the nests of the rough-legged species which I have seen have been on fell-craggs, nor does the plumage of this species seem to exhibit nearly so great a variation as in *Buteo vulgaris*.

The irides in *B. lagopus* darken in color with the age of the bird, the adults having a hazel iris, those of the immature birds being yellow. This is certainly a striking anomaly, and shows how difficult it is to establish, even from observation, any reliable code for Nature's rules.—*The Zoologist*.

Observations on Faunal Changes in Franklin Co., Ind.

BY A. W. BUTLER.

CLASS: BIRDS.

Thryomanes bewicki, (Aud.), Baird.—Bewick's Wren.—In 1856 Dr. Haymond had seen none of this species; between this time and 1869 he identified a few specimens. From that time to 1877 no specimens were recorded. In April of the latter year E. R. Quick identified four examples of this Wren. From that time to 1881 a few specimens were occasionally seen; since the latter date, however, each year has shown an increased number of specimens. At this time I consider it to be a Summer resident and not uncommon.

Dendroica cerulea, (Wils.), Baird.—Cerulean Warbler.—Formerly unknown from this locality. A few years since it was considered a rare bird here; now, excepting the Redstart, it is the most common of the tree inhabiting Warblers.

Petrochelidon lunifrons, (Say), Lawr.—Cliff Swallow, Eave Swallow.—"These Swallows first

built their nests in this county in 1849. Previous to that time they were occasionally seen as migrants" (Haymond). They are now very common in certain localities. They sometimes occupy an out-building for years as a nesting place and then leave for a new site, perhaps never to return. But few colonies are found along the river valleys; they appear to seek the upland.

Chondestes grammia, (Say), Bp.—Lark Finch.—This species was not recognized in this part of the State by any early investigators. It was first recognized in this county about 1877, and has appeared regularly every year since in increasing numbers. It is now not uncommon as a Summer resident.

Passer domesticus, (Linn.), Leach.—European House Sparrow.—A common and unwelcome alien, known everywhere as "English Sparrow." They first appeared in Franklin county in 1878. Since that time they have increased in numbers until they are now the most common representative of their family.

Spiza americana, (Gm.), Bp.—Black-throated Bunting.—Not recognized from this county until a few years since. Dr. Haymond had not seen it in 1869. Now its rattling note may be heard from almost every field of our upland farms.

Molothrus ater, (Bodd.), Gray.—Cowbird.—This species was, forty years ago, of rare occurrence in this region. It has steadily increased in numbers until it is now a common Summer resident.

Corvus corax americanus, (Bart.), Ridg.—Raven.—None have been seen since 1868. They were formerly quite common in this county.

Campophilus principalis, (Linn.), Gray.—Ivory-billed Woodpecker.—"These birds were found in the swampy woodland in the eastern part of this county about sixty years ago" (Haymond).

Hylocichla ustulata, (Linn.), Baird.—Pileated Woodpecker.—A common resident at the time of the settlement of this county. This bird was known to the old settlers as "Woodcock" and "Black Woodcock." None have been seen here since 1845, but they are still found in the newly settled portions of the State.

Coccyus carolinensis, (Linn.), Kuhl.—Carolina Parakeet.—These birds were not uncommon at the early settlement of this county. Most of the old inhabitants know them by this name, and can give interesting accounts of their habits. The last Parakeets were seen here in 1828.

Strix nebulosa, Forst.—Barred Owl.—This Owl was formerly quite numerous in the Whitewater Valley. Of late years, they have been but rarely seen. In 1877 I obtained two specimens which are the last I have known in the county.

Catharista atrata, (Wils.), Less.—Black Vulture.—First identified in 1877; since which time it has been seen every Winter. It is apparently becoming more common.

Ectopistes migratoria, (Linn.), Sw.—Passenger or Wild Pigeon.—Within the last twenty years Wild Pigeons have been very common, but since 1875 few have been seen. Our old citizens tell of immense flocks, and wonderful "pigeon roosts" in this county. In January and February, 1854, there was a pigeon roost about two miles north of Brookville. I can scarcely credit accounts told me of their numbers at this time, yet the narrators are perfectly reliable and I am compelled to believe them. These birds are rapidly disappearing and in a few years will, I doubt not, be a thing of the past.

Meleagris gallopavo americana, (Batr.), Coues.—Wild Turkey.—Turkeys were as common here formerly, perhaps, as in any part of the Ohio Valley. They have gradually disappeared and I suppose there are none now to be found in the county. The last one was seen in this vicinity about six years ago. They are still occasionally killed in the adjoining county, Ripley.

Ortyx virginiana, (Linn.), Bp.—Bob-White; American Quail.—Formerly very numerous. They were found in considerable quantities up to the Winter of 1878-9. The severe weather of that year destroyed many covies; since that time they have not increased much, if any, in numbers.—*Bulletin No. 1 of Brookville Soc. of Nat. Hist.*

Peculiar Eggs.

BY C. H. WILDER, WAYLAND, N. Y.

I notice in the June number a note on a peculiar set of eggs of *Scops trichopsis*. A few notes on the subject may be of interest. For a fuller discussion, those who have files of the Oologist, the O. and O., and the Young Oologist, may refer to the following places, whence I have drawn this: OOL., Vol. 4, p. 11, Travesty Extraordinary. " " " 17, A Nondescript Egg. " " " 25, That Nondescript Egg. ORN. & OOL., Vol. 6, p. 28, White Eggs of the Eastern Bluebird.

Also to the following notes on Spotted Eggs of the Common Robin:

ORN. & OOL., Vol. 6, p. 79.

" " " 9, p. 76 and 109.

Yg. OOL., Vol. 1, p. 131, 144 and 147.

Dr. T. M. Brewer wrote: " * * * any egg, *always* excepting a Woodpecker's, is liable to be marked (stained) by minute effusions of colored lymph of the parent in its exclusion." And again he wrote: "To what extent this liability of eggs,

usually immaculate, to be stained by the over-excited ovi-ducts of the parent may exist is purely conjectural."

Dr. James S. Bailey cited an instance of hybridity between a Dominique Cock and a Guinea Hen. *The eggs were not different from those of pure Guinea-fowl parentage*; they hatched, but the time of incubation and the coloration of the chicks were affected. One of the latter came to maturity and was substantial evidence of the unnatural fecundation. I quote from Dr. Bailey: "It is a well-known fact that members of the Finch family cross, as the Goldfinch and Canary, but it is positively known that the color of the eggs is not changed from that peculiar to the parent bird which lays them." According to Dr. Brewer, "Audubon claimed to have taken spotted eggs of the Three-toed Woodpecker."

My conclusions are: 1. Natural hybrids are rare, most cases being traceable to domestication.

2. Hybridization is known not to change the characteristics of eggs.

3. Abnormalities are known to arise from natural causes, and I should regard the eggs mentioned by your correspondent as merely a freak of nature, explainable by Dr. Brewer's hypothesis.

[As bearing on this question of Hybridization, we insert the following from Hardwicke's "*Science-Gossip*" (No. 246, page 149). Referring to the Royston or Hooded Crow, (*Corvus cornix*). "Mr. Henry Seebohm, a great authority on ornithological questions, and well versed in the habits of migratory birds, makes out a strong case against the Royston Crow for its disposition to interbreed with the Carrion Crow and other members of the family. The opinion of so accurate an observer is of course entitled to the highest respect, and yet it is not a little singular that the present representatives of the Hooded Crow, as they are caught in the neighborhood of Royston Heath, are as distinctly specific as any of their predecessors, with the same distinct light grey markings as of old, and no perceptible traces of hybridization. Indeed, I am informed by Mr. Norman, a naturalist, whose business of taxidermy, and that of his father before him, has for a period of sixty years enjoyed a more than local repute, that although many specimens of the local and general *rare aces* have passed through their hands, yet during the whole of that period only one specimen of the Hooded Crow has ever come under their notice showing traces of hybridization. With this there was the uncertain element of its being a young bird; but on being submitted to Mr. Gold, of London, it was pronounced by him to be a hybrid, and the result of interbreeding between the Royston and Carrion Crows. This specimen

is now in the collection of Lord Braybrooke at Audley End. With but this solitary piece of evidence in so long a period, my informant naturally asks, "Where do the hybrids go, if there is such an interbreeding?" The point is one that I must leave to those more competent to deal with. It is not likely, however, that such an accurate and patient observer as Mr. Seebohm would countenance such a theory without the fullest justification; but if the Carrion Crow is generally as rare as it is now becoming in the home counties, his local namesake, if he persist in his ways, will have to seek an alliance with the more numerous rook family. But common fairness compels me to admit that, at least, as he is seen in his Winter quarters, *Corvus cornix* may fairly claim that his family escutcheon is comparatively untarnished, and that he can boast the same bold markings and motley plumage as of old."—ED.]

A Florida Heronry.

On the 6th inst., I left Orlando in company with Mr. J. L. Mott, to visit his place on Lake Gentry, in Brevard county, Fla. The inducement held out by Mr. Mott was that he would show me the largest bird rookery in the State, which promise I am happy to state was to my own satisfaction completely verified. The rookery mentioned covers an entire eighty acre tract of ground, of which Mr. Mott is the sole owner and possessor. This tract has from time immemorial been the nesting place of countless myriads of water fowl, and the immense amount of bird guano deposited there is almost incalculable. I made an examination of the deposit in many places throughout the rookery, and do not feel that it would be exaggerating in the least to state that one million barrels would not contain the guano that has been deposited, and still remains, on the eighty acre tract. In fact, so large has been the deposit that the natural outlet of Lake Gentry, which flows through the rookery, has been choked by it to that extent that the water in the lake has been raised from two to three feet above its natural level. In regard to the statement made that this was the largest bird rookery in the State, I will state for the benefit of any unbeliever (if such there be), that I have followed the practice of hunting Florida birds for their plumage, during the proper season, for the past fourteen years, and during that period have visited almost every rookery of any note in the State, often being gone from home for months at a time, and have never before seen a bird rookery extending over more than three or four acres. I was at the rookery during the greater portion of three days; went all over it, impelled by a proverbial Yankee curiosity,

to ascertain the different kinds of birds nesting there. I found there nine kinds of Heron, namely: Wurdemann Heron, Snowy Heron, Night Heron, Golden-crowned Heron, Louisiana Heron, Blue Heron, Green Heron, Small White Heron and Egret. Of the Ibis I found but two species, the Large Wood Ibis (sometimes called the Horse Gannett) and the Small White Ibis, which is also called the White Curlew, of which latter species of Ibis mentioned, the rookery is largely composed. I also found there the Cormorant, Water Turkey, Rosy Spoonbill and the Great Bittern; in all fifteen varieties of water fowl, not including a vast number of Buzzards, Crows, &c. Some idea of the rookery may be obtained by one who is not prepared to visit it in person, by a statement of what came under my own observation while there. I counted on one small maple tree thirty-three nests while standing on the ground, but upon climbing the same tree I found over eighty nests, each one containing from three to five eggs about the size of hens' eggs. Upon another tree, a black gum, I counted one hundred and eighteen nests. As Mr. Mott had assured me that there were no less than one million birds in the rookery, I had the curiosity to make an estimate for myself. Allowing one nest to every two square feet of surface (which all who have seen it think is a low estimate), the number of nests on the eighty acres would be 1,742,400. Counting two birds to each nest, the number of birds would be 3,484,800. Now estimating that each pair of birds only succeed in rearing two young, it would give the enormous amount of 6,969,600 birds at the close of the nesting season—almost seven million. But perhaps you will say that such a statement is incredible. Very well then. I have only to say, go and see for yourself, as I did; Mr. Mott will show you around willingly. But I would advise you to take your vinaigrette along with you, for the stench of the rookery is actually abominable. With the wind direct from the rookery, the smell is discernible for nearly a mile. Although shooting in the rookery is strictly prohibited, yet through the courtesy of Mr. Mott I was allowed to obtain a few choice specimens.—*E. A. Richards in Orange Co., (Fla.) Reporter.*

The Nest and Eggs of the Blue Yellow-backed Warbler.

(*Parula americana.*)

BY S. ALBERT SHAW, HAMPTON, N. H.

I noted the first arrival of this species on May 13th, but on the 21st and 22d they were more numerous than I had ever observed them to be before. On the 25th, after a tramp over a piece of

swampy woodland, consisting of Oaks, Maples and Black Birches, I had paused to rest for a few minutes, meanwhile watching various Warblers flitting about among the treetops. After a while my attention was attracted by a small bird which returned several times to the same spot on a limb of a Black Birch three feet from the trunk and thirty-five from the ground. While watching it, the bird flew down to a bush not ten feet from me, then to the foot of a Birch, procured a piece of lichen and returned to the limb, as I had seen it do before.

I was highly pleased to recognize the bird as the Blue Yellow-backed Warbler. I visited the place on June 6th, and found the nest completed and containing two eggs. Three days later there were five eggs, and I secured them with the nest. The latter was formed beneath a nearly horizontal branch, one inch in diameter, by bending down on each side some long sprays from a bunch of lichens growing on the upper side of the limb, and weaving the ends together underneath, filling in with finer pieces of the same material together with a few pieces of dried grass, apparently forming a loose and flimsy structure; but on touching it one is surprised at its strength and firmness. Its outside dimensions are as follows: Length, $3\frac{1}{2}$ inches; width, $2\frac{1}{2}$ inches; depth, 2 inches. Each end is left open, the one for entrance being much more rounded and finished than the other. Each egg had exactly the same measure, viz: .50x .65 of an inch. They are white, thickly sprinkled with dark lilac about the larger end.

Among the Migrants at Hamilton, Ontario.

BY K. C. MCILWRAITH.

Two years ago when looking around for out door exercise *with an object*, I turned my attention to collecting birds and making up the skins. I need scarcely say that this has suited my purpose admirably, besides affording a great deal of enjoyment. As many of your readers may be similarly situated to myself I have thought it might interest them to hear the result of one or two short collecting trips which I have recently made with considerable success.

Being at school, Saturday is my only available day, and the second and third Saturdays in May are looked forward to with more interest than any others of the year. This year there was a slight increase in the number of the early species about the 10th of May, but from that date until the 21st, the weather was bright and cool and bird life remarkably still. On the 22d it rained slightly all day and kept on during the night. On

the morning of Saturday, the 23d, the rain had ceased but everything was enveloped in thick fog. I liked the look of the morning very much, and leaving the city at about 6 a. m., drove six miles to a well known point, where I tied up the horse and soon had plenty to do. From the numbers of small birds which swarmed everywhere it was evident that a "wave" had been passing over, but had been delayed by the fog and now the only difficulty was to select the most desirable species. I tried to do this as I best could, but after all brought down some common ones by mistake. I stayed till 11 o'clock, and then returned with the following "bag":

1 Carolina Rail, 1 Scarlet Tanager, 1 Oven Bird, 1 Red-eyed Vireo, 1 Wood Pewee, 1 Yellow-bellied Flycatcher, 1 Swamp Sparrow, 2 Redstarts, 1 Alice's Thrush, 2 Lincoln's Sparrows, 3 Blackburnian Warblers, 2 Chestnut-sided Warblers, 3 Spotted Canadian Warblers, 1 Yellow-rump Warbler, 1 Black-and-yellow Warbler, 1 Nashville Warbler, 2 Bay-breasted Warblers, 2 Green Black-capped Warblers, 5 Mourning Warblers, 2 Connecticut Warblers. The above were collected by two guns between 7 and 11 o'clock.

In the afternoon another of our party visited the same locality and returned at 7 p. m. with 1 Whip-poor-Will, 1 Titlark, 1 Red-eyed Vireo, 1 Short-billed Water Thrush, 4 Spotted Canadian Warblers, 1 Hooded Warbler, 5 Bay-breasted Warblers, 1 Black-throated Green Warbler, 1 Black-throated Blue Warbler, 1 Black-and-Yellow Warbler, 2 Mourning Warblers, 1 Connecticut Warbler, 2 Green Black-capped Warblers.

Sunday the weather was still foggy, and on Monday, the 25th, it began to clear away. This day being Queen's Birthday, and a holiday, I was again at liberty, and with my former companion reached the same point at 7 a. m. and returned at noon with the following birds: 2 Blue Jays, 3 Black-billed Cuckoos, 2 Carolina Doves, 1 Marsh Wren, 1 Indigo Bird, 2 Lincoln's Sparrows, 2 Yellow-bellied Flycatchers, 1 Warbling Vireo, 4 Mourning Warblers, 2 Black-throated Blue Warbler, 1 Black-and-yellow Warbler, 2 Blue Yellow-backed Warblers, 1 Blackburnian Warbler, 2 Green Black-capped Warblers, 2 Black-poll Warblers, 1 Maryland Yellow-throat, 1 Spotted Canadian Flycatching Warbler, 1 Redstart.

Tuesday, the 26th, was bright and clear, the same locality was visited again by one of our party, but except a few Black-polls which were loitering about, all the migratory birds were gone, to be seen no more for a time. We have usually got one or two Mourning Warblers at this point each year but never so many as this time. The Lincoln's Sparrow, Hooded Warbler and Connecticut Warbler are all first records for the locality.

Notes on the Zoology of Manitoba.

BY THE LATE T. B. WOOD.

(Communicated by T. H. NELSON to *The Zoologist*.)

[The following notes are extracted from the letters of my late friend Mr. T. B. Wood, of Middleton, near Manchester, who went out to Manitoba in the Spring of 1882, and who lived for some time at Brandon, in the North West, the then terminus of the C. P. Railway. Mr. Wood was an enthusiastic naturalist, and, unfortunately, fell a victim in the cause of his favorite pursuit. One day, towards the end of October, 1883, having shot a rare Duck (a Buffle-head, I believe) on a slough, he incautiously waded into the water up to his waist to retrieve the bird, thereby contracting a severe cold and inflammation, which resulted in his death in a very short time.

As may be seen from his notes, the neighborhood of Brandon abounds in animal life, especially at the periods of the vernal and Autumnal migrations.

Mr. Wood was busily engaged in forming a collection of skins of the birds and other animals which are found in the North West, and it was his intention to have prepared a list of Manitoban Birds for publication in 'The Zoologist,' when his career was prematurely cut short, in the manner mentioned, at the early age of twenty-six.

The period over which his observations extended was from the end of May, 1882, to October, 1883, the first letter after his arrival at Brandon being dated May 31st, 1882, in which, after detailing his first experiences of Canadian life, and describing the town of Brandon, he proceeds in manner following.—T. H. N.]

On the journey from Minneapolis to Winnipeg, and thence to Brandon, we saw great numbers of Ducks, Herons, Bitterns, Goatsuckers, Plovers, Buzzards, Hawks, Prairie Chickens, Geese, and other birds which I did not recognize; as also a great many Foxes and Squirrels. The land all around here is as flat as a pancake, with a few scrubby trees occasionally, and here and there swamps on which you will always see Ducks and a Bittern or two. The day after my arrival I saw a herd of Bisons.

June 15th.—Early this month, B. and I drove out to Jeoman city and thence south across the prairie; we camped out about ten miles from Brandon and resumed our journey next day, until we were about eighteen miles in a southerly direction from Brandon. It is about the finest country you could imagine in the wildest flights of fancy; Ducks getting up under your feet at every yard; Hawks, Goatsuckers, Prairie Chick-

ens, and small birds in all directions; and, what do you think? the Black Tern breeding in hundreds; over a space of six miles I saw them in countless numbers. The Ducks were principally Blue-winged Teal, Pintails, Shovellers, and a black-looking Duck which I could not identify. I shot a Teal and a splendid Shoveller drake for the pot. I can fancy I hear you exclaiming against the barbarism of eating such a bird; but I am getting daily accustomed to birds which are considered rare in England, and regard them now from a more utilitarian point of view. I also saw a splendid pair of [Wilson's] Phalarope swimming on a pool only a few yards away; one of them kept rising and flying round, and I could distinguish the beautiful red and black neck quite plainly. We camped for the second night on the prairie, and the mosquitoes were very troublesome to my companion, but fortunately, they did not attack me; and we returned to Brandon next day.

July 2d.—About the end of June we paid another short visit to the swamp and brought home a few more Shovellers. I have a Goatsucker sitting on two eggs just in front of my tent; and there are any number of Prairie Chickens' nests all around, most of them now containing young ones. Brandon looks lovely at night with fireflies flashing about like diamonds all over the prairie. I killed a Badger, a Goatsucker, and a Pintail, near here yesterday.

July 19th.—Early this month I was staying with a friend twelve miles away, at Badger Hill, close to the Assiniboine River, and surrounded by immense forests of Oak, Pine, and Tamarac. The first evening of my arrival my friend and I sallied forth in search of game. I spied something moving along in the grass, and immediately firing at it with my rifle, had the satisfaction of seeing the beast roll over. On a nearer approach, however, we were unpleasantly apprised of the nature of the animal, for the odor which greeted our nostrils proclaimed the everlasting Skunk. Needless to say, we beat a hasty retreat. Next day we were busy cutting down trees, fencing and digging; now and then rushing with the gun after some *rara avis* passing near. I shot half-a-dozen large Hawks and Owls, and skinned two; one, I think, the Hawk Owl, (*Surnia funerea*), and the other, one of the Harriers, (*Circus sioninsoni*), almost the color of a common Gull. I also got a beautiful little Hawk, about the size of a Merlin, with blue wings and back like a Kestrel, blue and red head and red feet, apparently *Tinnunculus sparverius*; and a fine Grey Shrike, exactly like our English species. I could shoot any number of birds if I liked, but only secure spec-

imens when I have time to skin them, except in the case of Hawks, which I slay on most occasions when opportunity offers. All I have got so far I have skinned, though I have to do that part of the collecting when the day's work is over. When at Badger Hill we got up at 5 a. m. every morning, made up the fire, and then strolled down to the river with the gun and looked at our fishing lines; then back to cook what we had caught for breakfast. We got some immense fish at times. After breakfast we had a drive over the prairie or a row down the river. One day we were driving out, when suddenly we were saluted by the well-known cry of the Curlew (bringing back recollections of the Tees Mouth and Mostyn to my mind). There they were in couples; one foolishly passed over us, and I fired at it from the carriage; down it came, and then another bit the dust. They were very like our English Curlew, but buff-colored on the breast and under the wings, and the same tinge runs all over the body. I guess it was the Esquimaux Curlew.* We plucked and ate them; but I will get specimens to preserve. Prairie Chickens are getting strong on the wing, and in another fortnight I shall be after them. The other night I scared a Wolf outside my tent, but did not get a shot at it.

August 5th. I have been staying at Badger Hill a good deal lately, and I have done a little shooting. One day early in the month two guns bagged twenty-two Ducks and two Grebes. The Ducks are difficult to retrieve, and we lose quite one-half of what we shoot in the reeds. I shot two Yellowshanks, (*Totanus flavipes*), and could have killed many more, but don't waste cartridges on such small game. On the way out here I got a fine Buzzard; its crop was full of grasshoppers and mosquitoes. The sail down the Assiniboine is very grand: woods on both sides resound with the songs of myriads of birds of different kinds. I only fired two shots down the river and secured two beautiful Kingfishers, (*Ceryle alcyon*). They are a little larger than our Green Woodpecker, and about the same shape. I saw some Sandpipers very like our common Sandpiper, [doubtless the Spotted Sandpiper, *T. macularius*.] Birds are beginning to flock, and in a few weeks the migration south will commence.

* [As nothing is said as to size, length of bill, wing, or tarsus, it is impossible to identify the species with certainty; but if "very like our English Curlew," it was most probably *Numenius longirostris*; for *Numenius hudsonicus* would have reminded the shooter of our Whimbrel, while the Esquimaux Curlew is so much smaller than either of these that it would have at once attracted attention on that account.—Ed.]

(To be continued.)

THE
ORNITHOLOGIST

—AND—

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NATURAL HISTORY,

ESPECIALLY DEVOTED TO THE STUDY OF

BIRDS,

THEIR NESTS, AND EGGS.

DESIGNED AS A MEANS FOR THE INTERCHANGE OF NOTES
AND OBSERVATIONS ON BIRD LIFE.

FRANK B. WEBSTER, Publisher,

PAWTUCKET, R. I.

Editor's Notes.

Our readers will miss this month our usual contributions from Prof. W. W. Cooke and Dr. Morris Gibbs. We hope to insert a continuation of their notes in our August number.

"Last Summer," say the *London Graphic*, "a Swallow made its nest in a house at Ronneburg in the duchy of Saxe Altenburg, and became very friendly with the family. Just before the Autumn migration the owner of the house tied a waterproof label under the Swallow's wing, writing in German on the paper that he would like to know where the bird wintered. This Summer the bird has returned to its German nest, bringing back a similar label inscribed in German, 'In Florence, at C—'s house, and I bear many salutations.'"

In our January number we asked our readers in the different States to send us information as to the "course to be adopted to obtain a permit to collect eggs and skins of birds" In response we have received from various States printed copies of the regulations regarding Game Protection, but our information upon the special point of interest to many of our readers remains about as meagre as before. The point

upon which information is desired is how exemption from these regulations may be obtained by *bona fide* ornithologists.

The season of 1885 seems to have been an unusually favorable one for the breeding of the English Sparrow—judging from our own observations as well as accounts from various sources. We have been inclined to take the side of the bird against his enemies and traducers, but find ourselves coming to look upon him as a nuisance. While unwilling to lose sight of his usefulness as an insect destroyer, we would much like to have him a little "less numerous."

Notes on the Water Birds of Emporia, Kansas.

BY V. L. KELLOGG.

The larger part of our water birds is, of course, only here during the migration in the Spring and Fall, but we have a few Summer residents. In this paper I will speak of the Ducks, only, from among our water birds. Col. Goss in his catalogue of the Birds of Kansas mentions twenty-one species that are found in the State, of which twenty have been seen here. The one not yet noted is the Red-breasted Merganser, (*Mergus serrator*), catalogued by Col. Goss as migratory, rare.

The Wood Duck, (*Aix sponsa*), is the only Duck commonly breeding here through this year. I have taken several sets of eggs of the Blue-winged Teal, (*Querquedula discors*.) During migration in the Spring this Duck is here in greater numbers than any other. Other common migrants are the Mallard, (*Anas boscas*), (may breed here, having been seen quite late in the season;) Gadwall, (*Chaulestamus streperus*); Pintail, (*Dufila acuta*); Widgeon, (*Mareca americana*); Shoveler, (*Spatula clypeata*); Green-winged Teal, (*Nettion carolinensis*); Lesser Scaup, (*Fulix affinis*); Ruddy, (*Erismatura rubida*); Bufflehead, (*Clangula albeola*); and Redhead, (*Aethya americana*).

The Canvas-back, (*Aethya vallisneria*), and Ring-bill (*Fulix collaris*), may be classified as not uncommon, while the Greater Scaup, (*Fulix marila*), American Golden-eye, (*Clangula glaucium americana*), Dusky Duck, (*Anas obscura*), and Cinnamon Teal, (*Querquedula cyanoptera*), have all been found here, but are rare. Especially is this so of the Cinnamon Teal, there having been, as far as I know, but three reports of its having

been taken in the State, one in Gone county, once at Wallace (?), both being in the extreme western portion of the State, and once here. During the Winter, if open water can be found, the Buff-breasted, (*Mergus merganser americanus*), and Hooded Mergansers, (*Lophodytes cucullatus*), may be seen.

During the Spring migration Ducks are much more plentiful and stay with us much longer than in the Fall. In point of arrival the Pintails, Green-wing Teal, Mallards and Redheads are the earliest, first appearing about March 1st, the Blue-wing Teal and Shoveller being generally the last, arriving about the 1st of April and staying until the middle of June. There not being much water here causes what there is during the Spring to be well supplied with birds, and an insignificant little puddle may be a famous spot for hunting. In the Fall the Ducks hurry swiftly by, comparatively few stopping. Here the favorite duck for eating is the Mallard, being large, and of mild flavor, but people who think that a Duck is a Duck, one being as good as another, naturally become disgusted with Ducks when they try to eat such things as Mergansers, "Sheol" Divers and the like. I have seen people at a meat market buy Ruddy Ducks in preference to nice little Green-wing Teal because they (the Ruddys) seemed, on account of their shape, so much fatter and plumper.

A Birds'-Nesting Ramble in Lapland.

BY ALFRED CRAWHALL CHAPMAN. (*The Ibis*.)

The ornithology of the extreme northwest of Europe has not been treated of for some years in *The Ibis*, so perhaps the following account of a trip to East Finmark during the Spring of 1884, may be of interest. The district visited was the valley of the Tana, one of the great rivers which drain the area lying between the North Cape and the Gulf of Bothnia. The Tana and the Muonio-Tornea rivers have their source in the same district, the former flowing northwards into the Tana Fiord, a little to the east of the North Cape; while the Muonio-Tornea, flowing in a southerly direction past Muonioniska, the scene of the late Mr. Wolley's memorable achievements, empties itself into the Gulf of Bothnia.

In crossing the North Sea, on May 21st, when two hundred miles from land, a Whinchat came on board the steamer and sought shelter near a warm steam-pipe; the unfortunate little bird must have been much fatigued, for shortly afterwards it fell dead from its perch. On the 22d, during a short walk in the suburbs of Bergen, I was

pleased to see Pied Flycatchers, the males in fine black and white plumage. Between the 23d and 26th of May, when going up the fiords, the usual common sea-fowl were to be seen; but twice I observed Brown Eiders, with very pale-colored heads, which I took to be female King Eiders. On the 27th we arrived at Bodo, in Nordland, (lat. 67° N.); and after obtaining permission from the magistrate there to shoot specimens, we made our way across what was formerly a marsh, behind the village, but which is now drained. I suppose it would be here that the Messrs. Goldman found the Great Snipe breeding (*Ibis*, 1861, p. 87); now nothing but an occasional Golden Plover and numerous Wheatears floated over the dry tussocks of moss. The first birds that attracted attention were a pair of Northern Marsh Tits (*Parus borealis*) actively searching the lower stems of the birches for food. They appeared to be much lighter in color on the underparts than our Marsh Tits, and the long fluffy plumage of a slate-blue tinge is wonderfully adapted to resist the rigors of a northern Winter. Magpies were very common, and I noticed them breeding in low bushes in the streets of Bodo. Presently we got among a colony of Fieldfares (*Turdus pilaris*), their nests, which we found in great numbers, being mostly placed in small Birch trees, from three to ten feet from the ground. I remember looking down on a Fieldfare's back, as she sat on her eggs, and remarking how ill-fitted the circular nest was to the outline of the bird's body, for I could see right into the bottom of the nest on each side of her closed wings, although the eggs were not visible. The trees being small and stunted, the nests were necessarily placed close to the main stem; they were constructed of dry white grass externally, then about an inch and a half of wet earth, and an inside lining, about an inch thick, of dry white grass. The internal diameter was invariably four inches, and I found afterwards that those of the Redwing (*Turdus iliacus*) were as invariably three and one-half inches. The old birds occasionally hovered in the air with jerky flight, after the manner of a Pipit, uttering a peculiar cry, which could scarcely be called a song; but I think this is confined to the breeding season; they also kept up a continual cackling, similar to the familiar note we hear in Winter. While selecting some of the finest clutches of eggs, we presently saw a nest of sticks in the top of a Birch tree, and on approaching, a male Merlin (*Falco esalon*) dashed off it. Soon the female Merlin appeared, mobbed by a screeching crowd of Fieldfares, and I easily secured both these little Falcons. The nest ap-

peared to be newly built, of thick Birch branches loosely put together, and lined with a little moss, dead leaves, and a few feathers, but deeper in the centre than the nests of the Sparrow Hawk or Kestrel; it contained three very dark-colored eggs. It struck me as peculiar that these active and powerful little Falcons should be quietly nesting in the very midst of a colony of Fieldfares; for there must have been at least a score of the nests of the latter within a short stone's throw of the Merlin's tree. A single Rough-legged Buzzard was seen to-day; on the low grounds Reed Buntings and Willow Wrens were very common, and a single Chiffchaff was seen and heard singing lustily, as well as a single Hedge Sparrow. Blackcocks were "crooing" loudly in the still evening, and occasionally we flushed a Willow Grouse, which seemed to be already in Summer dress; its bold *bec-bec* on rising exactly resembles the cry of our British bird. Bramblings were numerous in the Birch forests, their monotonous drone, like the word *cree-ee*, being continually audible; it struck me as resembling the note of the Greenfinch, but distinctly louder and shriller. I often saw them floating about in the woods with quivering wings, somewhat reminding me of the Wood Warbler; but they were rather wild, and it was some time before I procured one. Ring Ouzels were common in the steep heather-clad gorges, and I saw one pair of Mealy Redpoles sitting together on a dead twig projecting from some snow, their gray breast-feathers fluffed out, and looking very disconsolate. Where the ground was wet, Redshanks and Snipes kept getting up, and I took an egg from the oviduct of a Yellow Hammer which I got here. On the 28th we took a boat, as I had heard that a pair of White-tailed Eagles bred annually on a rocky island off Bodo. We did not find them at home, however, so having landed we amused ourselves by watching a pair of Ravens (*Corvus corax*) which had a nest in the face of the crag, containing several young birds nearly ready to fly. The youngsters frequently hopped on to the side of the nest, and flapping their wings, received their first lessons in the art of flying. Directly they saw us they would drop back into the nest, whilst the old birds kept flying round, occasionally uttering a deep guttural "croak."

While watching the Ravens, a Kestrel (*Falco tinnunculus*) flew into the crag and began to make signs of disapproval at our intrusion here. He seemed to have come to the crag for the purpose of feeding, and on being fired at dropped a half-eaten Redwing. Here I observed a pair of Redstarts, and a pair of Common Scoters were

busy diving in an enclosed bay of the sea. Next day we found the nest of a Hooded Crow (*Corvus cornix*), containing three newly hatched young and two eggs; amongst the wool which lined the nest was a fairly large sheet of a Bodo newspaper. We also observed a pair of Common Sandpipers on a small piece of water rather high up on the hills.

The Loffoden Islands had a fine but wintry appearance as we steamed past them on the 30th of May, for from the summit of their jagged peaks down to the water's edge was one white expanse of snow. At Harstadhavn, where we waited several hours, I observed flocks of Common Gulls (*Larus canus*) feeding on the patches of cultivated land. Fieldfares' nests were also numerous, but here none of them had eggs yet, though a Hooded Crow had a nest full of half-grown young. Magpies were common. On the 31st I observed Arctic Terns for the first time. The nights now were as light as day, but there did not seem to be the least sign of Summer. Tromso was reached in the evening, and there, according to arrangements made before leaving England, I met and engaged a Norwegian servant, afterwards referred to as Trinus, to accompany me on my journey to Lapland.

June 1st—3d. The hills north of Tromso were clothed in snow to the water's level, and we were greeted by cold north winds and occasional snow storms. Nevertheless, at Værholt, in Laxe Fiord, in spite of the cliffs being covered with snow, Common Gulls already had eggs in numbers. On the 4th of June we landed at Stangenæs, in the Tana Fiord, at 3 a. m., and a dull and dreary look-out it was—great steep cliffs and rounded hills, with pure white snow down to the sea level. Where could we expect to find birds breeding in such a country? A pair of Merlins were hawking about the shore, chasing and alarming the small birds (Wheatears, White Wag-tails, and Titlarks); Cormorants, or Shags, Eiders, and Mergansers seemed plentiful, and seals were numerous. We got a boat to take us from Stangenæs, at the head of the Tana Fiord, to a little island called Gulholmen, at the mouth of the Tana river; but instead of being able to go straight up the country, as I had intended, I found that the ice in the river had not yet broken up, and about two miles above Gulholmen a white line of fast ice extended right across the stream, beyond which it was impossible to go. The river banks and the fells above them were many feet deep in snow; the Birch forests were without sign of leaf, and the fell-lakes were all solid ice. Sledging on the frozen river was not

considered safe, as Summer was too near; the use of "skiddor" was impracticable on account of the soft state of the snow; and the only means of getting about was to struggle on foot, sometimes sinking up to the arms in snow. The natives do not move about at this season of the year, but either remain indoors or make short journeys in their canoe-like boats on the open water at the mouth of the river.

In rowing up to Gulholmen we had seen several flocks of Duck sitting in the open water and on the ice floes in the river. We accordingly got a boat and went after them. They seemed to swim very high in the water, with their tails well up, and kept uttering a melancholy sort of note, not unlike the mewing of a cat. On our approach they rose, and a string of ten flying around us, I managed to drop five, which proved to be Long-tailed Ducks (*Harelda glacialis*), already in Summer plumage. Having landed to explore the snow-clad hills, we made our way up a considerable fell, and were idly throwing stones over a precipice, when a Rough-legged Buzzard (*Buteo lagopus*) slipped away from nearly beneath us. On looking over the crag we could easily see the large nest below us, containing three eggs, lying on dry white grass. The old birds kept sailing around, uttering a loud weird cry, but they would not come near; so I hid myself and sent Trinus away to attract the bird's attention. It was a long but pleasant wait. The evening was very still, the air frosty, clear, and refreshing, and on that dreary fell not a sound was to be heard, save the occasional merry chirrup of the male Wheatear. I made a note at the time, how very much the initial notes of the Wheatear resemble those of the Merlin, and several times the small Chat's clear voice was mistaken for that of his most deadly enemy. Suddenly aroused by the rapid "swish" of wings close over my head, I raised my eyes, and could just see the tips of the tail feathers of the female Buzzard as she sat on the side of her nest; several loud shouts had to be given before she realized the position, and when she flew I secured her. Her general plumage was a deep rich brown, the inside of the mouth flesh color, the irides hazel. As it was impossible to reach the eggs without a rope, we made our way back through the snow; and I well remember my first impressions of the lovely song of the Blue-throated Warbler (*Cyanecula suecica*). Hearing the gush of melody from amongst some scrub appearing above the snow surface, and approaching quietly, we presently detected the rich blue throat of this handsome Warbler against the white snow. I certainly

think the song of this Warbler exceeds anything I ever heard; at times it is soft and mellow as that of a Willow Wren, suddenly striking up to the angry hissing notes of the Sedge Warbler, and occasionally finishing with the most astonishing metallic sound, a regular "twang, twang," not unlike the tinkling of a bell—whether in mimicry or natural song is difficult to define. I noted that the Blue-throat, as well as the Willow Wren, were in full song at midnight here. How strange it is that such an insignificant little bird as the Willow Wren should have such an extensive breeding range, nesting alike in the south of Spain and on the North Cape! When we returned to our boat to-night great pieces of ice were slowly floating down the river from the frozen reaches above.

June 5th. Returned to the Rough-legged Buzzard's nest, taking with us some thirty yards of rope; but I failed to secure the male Buzzard, although he was sitting on the eggs when we got to the place. By a little manipulation we managed to reach the nest, which consisted of a mass of dead sticks about two feet thick, with a layer of solid ice about six inches thick immediately under the new grass lining on which the three eggs were lying. The nest was full of "pellets," consisting of blue fur and small bones, either of some field mouse or the lemming, and was, I think, the accumulation of years. Returning home that night, I secured the male Blue-throat; singing in the same place as I had seen him yesterday. A Hooded Crow's nest contained four small young to-day. Long-tailed Ducks kept continually flying up and down the river, and I saw two large Geese go up the river at night.

June 6th. Dull and cold, like Winter. Opposite Gulholmen, on the other side of the river, is a level expanse of snow, from two to four feet deep, the stunted Birch trees rearing their bare heads above it all, so that when walking through the snow it is necessary to push one's way through the tops of the Birch forest. In a few places, however, the snow had melted, leaving water holes, at the bottom of which grass could be seen growing; and in these open places many birds were seeking food, amongst which I recognized Temminck's Stints (*Tringa temminck*), flying about, with wings erect above their backs, uttering a continuous "trilling" note, and then suddenly diving down into the scrub. They were very tame, chasing each other about and manifesting signs of the approaching breeding season. Next a pair of Lapland Buntings (*Plectrophenax lapponica*) rose from a water hole, the male uttering a clear flute-like song as he perched on the

summit of a Birch tree. Then a pair of Wood Sandpipers (*Totanus glareola*), with a splendid loud call note, flew up, one of them deliberately lighting on the summit of a slender bough and steadying itself with outstretched wings, the other seeking shelter in the scrub. Both these birds and Temminck's Stint have yellow ochre colored legs and feet. Blue-throats, Titlarks, Willow Wrens and Wheatears were also numerous. A thousand feet above us, in a line of lofty crags, two pairs of Peregrine Falcons (*Falco peregrinus*) and one pair of Ospreys (*Pandion haliaetus*) were circling round, their fine wild cries echoing through the crags; but when, after a laborious climb, we reached the summit of this precipice, they only soared higher, and we could see no signs of a nest. While sitting here a Raven, also evidently nesting in the crag, flew past us, his throat distended with the food he was carrying for his young. I disturbed a couple of mountain hares here; they were just beginning to get the grey fur of Summer. Large herds of reindeer were also seeking their scanty living of lichens on the highest fell-tops; these were the tame animals belonging to the Laps, but already turned out for the Summer. Here they are allowed to roam at large until the Autumn, and such is their instinctive dread of the pestilent mosquito, that they seldom depart from the highest and coldest parts of the fells. When skinning birds to-night I found that both the Temminck's Stints and the Lapland Buntings had very small embryo eggs in their ovaries.

June 7th. On our return to the crag opposite Gulholmen, the Ospreys were there, but only one pair of Peregrines. When sitting on the crag top the female Osprey appeared carrying a long twisted stick in her talons, her long thighs dangling below her. It was evident that she had a nest, and presently we found it, placed on the summit of a detached pinnacle of rock projecting from the main crag. It was utterly inaccessible, either from above or below; but we could see it contained no eggs, although it was lined out with green moss. I afterwards shot the female Osprey, and found that she had very small eggs in her ovary; the legs and feet as well as the cere were a pale pea-green color. On the 8th of June I observed the only Chaffinch (*Fringilla caelebs*) that I saw whilst in Finmark.

June 9th. Much snow fell to-day, with a bitterly cold wind. On the sandflats at the junction of the Tana with its fiord were about a hundred Geese, sitting on the bare sand amongst some stranded ice floes. Adjoining the sandflats, and between them and the snow fjelds, was first a narrow space of

rather long grass, with frequent pools of snow water, and then about half a mile of semi-inundated Birch scrub. It was in the grassy parts that I first became acquainted with the Red-throated Pipits (*Anthus cervinus*). They seemed retiring in their habits, running rapidly along the ground, like a mouse, keeping the body very low and horizontal. They were difficult to see in this position, and if one approached nearer to them, a pair would spring up into the air with a shrill pipe, and allow themselves to be carried by the wind perhaps a hundred yards to leeward, when they would, with jerky flight, beat up again, to re-align on their favorite spot. Though I procured several, I could not detect any sexual difference in the cream-coloring on the throat.

While sheltering underneath a sand bank from a pitiless snow storm, a Raven came past us, his throat distended with food. Then a Rough-legged Buzzard with very light-colored plumage alighted on a rock near at hand and sat quietly pluming himself. Presently an Osprey, with buoyant flight, loomed through the snow flakes, and checking his speed, hovered for an instant; then, with headlong swoop, he dashed into the waters of the fiord, reappearing with a fish dangling from his talons. After shaking himself, he flew past us, and, on being fired at, dropped the fish; dissatisfied, he swooped at it when falling, but did not succeed in overtaking it. The fish proved to be a sole, 9½ inches long and 6 inches wide, with but one claw mark in the body, and lived for many hours afterwards. While trying to ascend the side of a fjeld we distinctly made out several Geese feeding on some shallow water, and approaching nearer, I could easily see they were one or other of the two White-fronted species. Whilst watching them a male Merganser swam quite near to me, and having caught a small fish, was chased and bullied by a Herring Gull till he was compelled to take flight. This seemed to disturb the Geese, for they ceased feeding, and with outstretched necks peered around suspiciously. When I fired at them a pair of Redshanks rose close to me, and walking home that night I secured one of a pair of Ring Plovers by the riverside.

June 10th. Heavy snow storms greeted us to-day. I saw the first Grey-headed Yellow Wagtail (*Motacilla cinerocapilla*) this morning, which had seemingly just arrived here. In the Birch forests, though deep in snow, we found four nests of the Mealy Redpole, all in course of construction; the old birds were absurdly tame. The nests were very pretty, lined with the white woolly material of the Willow scrub. The monotonous, though lively carol of the Redwing, which we never hear

in England, was very noticeable this morning; and to-day I found the first nest, with five fresh eggs, placed about three feet from the ground in an angle formed by the stem and the fallen superstructure of a Birch tree. The nest was composed entirely of very fine dry white grass, with a layer of damp moss on the foundation. There were no sticks about it, and it was very neat and compact. I both saw and heard a single Tree Pipit (*Aythya arborea*) singing to-day, but I unfortunately missed it. In the afternoon we again ascended the felds, where we observed Temminck's Stints gyrating in parties of three or four high up in the air. At 6.30 p. m., we crossed the river to Gulholmen. All then looked quiet and as usual, but at 7.30 the whole of the ice in the upper reaches of the Tana river had broken up and was coming down in tens of thousands of tons at the rate of about four miles per hour. This is the first indication that the natives have of the long looked for change from Winter to Summer, though for days past wherever one went the roaring of waters could be heard, indicative of the rapid melting of the snow in the high grounds. It is this natural water supply that is the primary cause of the breaking up of the ice; so severe is the Winter in these latitudes that the river becomes frozen to the very bottom, and it requires the accumulated force of the melted snow water, getting under the ice, to lift the mass bodily up, and once afloat, it is rapidly propelled seawards. The movement to-night took place gradually and steadily, nor was there so much of that rush and confusion which one might expect to see, where such a mighty change was taking place. It seemed, however, to create a feeling of excitement, not only in us, but in the birds; for the Geese on the opposite shores of the river, the Long-tailed Ducks, Divers, and other birds seemed to make more clamoring than usual, as if joyous at the signs of approaching Summer. A single Long-tailed Skua (*Stercorarius parasiticus*) went up the river to-night, and we observed a solitary Swallow hawking round the house at Gulholmen, evidently just arrived.

June 11th. Most of the ice had gone out while we slept, and this morning we had fine warm Summer weather. On the fells to-day we observed pairs of Snow Buntings (*Plectrophanes nivalis*) flitting merrily about; they were not yet breeding, for in the ovaries of some which I examined the eggs were but slightly developed. The feathers around their bills were always stained purple with the juice of the "krokeber," a fell-berry on which they feed. I often noticed in the hollow bare trunks of the decayed Birch

trees large accumulations of red berries from which Redpoles and Bramblings frequently flew up as one approached; and it seems as if these berries form a Winter store for some creatures which reside there, probably squirrels, though we never saw any. The Mealy Redpole is known to Winter here, but the Brambling migrates south. To-night the midnight sun was up in his fullest majesty, but no heat seemed to reach the earth, the air being clear and frosty.

June 12th. At 9.30 a. m., we left Gulholmen and, with a Lap at one end of our boat and a Qvane at the other, we "poled" incessantly up the now open river until we reached Pulmak, at 3.30 a. m., on the following morning. I was surprised at the absence of bird life, although there were extensive mud banks and shoals, apparently well adapted for the Waders. We landed at several likely looking spots on the way, at one of which a pair of Wood Sandpipers clearly had a nest. Common Sandpipers, Ring Plovers, Temminck's Stints, and Long-tailed Ducks were all the birds we observed. About six miles north of Pulmak, and about midnight, I flushed a strange looking pair of birds from an "ene" (juniper) bush. As they went away I mistook them for Green Woodpeckers. I shot one of them as it glided away with undulating flight, and my surprise was great to pick up a Pine Grosbeak (*Pinicola enucleator*). Just then Trinus cried out that he had found a nest, and on my coming up, there was the pretty wickerwork nest with two eggs of the Pine Grosbeak. On looking about we soon saw the other bird sitting callously quite close to us, and she completed the series. The occurrence of this species north of the Arctic circle had not previously, according to Professor Collett (Orn. North. Norway, p. 22), been satisfactorily established. The plumage of the Pine Grosbeak appears to have always been an unsettled problem so I will merely state that both birds, male and female, were of the greyish-green type, the male having rather more of the orange color than the female. It is clear that, although the scarlet dress is considered by some to be the adult plumage, this does not necessarily imply that an immature bird cannot breed; for if such were the case here was a clear instance of two immature Pine Grosbeaks having a nest and eggs. The birds were roosting within twenty yards of their nest, and when skinning the female I took a third egg from her oviduct. I afterwards found near Pulmak a male in full scarlet plumage paired and nesting with an ash-grey female, and a third nest was occupied by two greyish-green birds. The nest of the Pine Grosbeak decidedly resembles that of the Bullfinch, being constructed

externally of an extremely light network of thin Birch twigs firmly interlaced into each other. This substructure is overlaid by a lining of fine stiff grass, distinctly visible through the network of sticks from below. On pulling the lining to pieces an odd horsehair could be detected. The nest was placed in a small Birch tree, about six feet from the ground, and very open. I was rather surprised to find the Pine Grosbeak breeding here, as I thought it was confined to the Pine districts. But I found several pairs of this bird breeding around Pulmak, where is not a sign of anything save stunted Birch and Willow, and from their crops I took birch-catkens. We had considerable difficulty in effecting a landing at Pulmak, as, owing to a bend in the river, the ice had become congested and piled up in great heaps, at least ten feet high, along the shore.

June 13th. Pulmak, which is situate a little north of the 70th degree of latitude, consists of some half dozen Lap settlements and one fairly comfortable inn. It is situated in a bend of the Tana, which is here perhaps 400 yards wide. Around are low fells, seldom rising to any great height, thickly carpeted with reindeer moss and clad with Birch forest up to a certain level; in many cases the hills are so low that the Birch reaches and crowns their summits. Close to the door of our dwelling a pair of Wigeon (*Marca penelope*) rose this morning and I secured the drake, still in full Winter plumage. Farther on a pair of Rough-legged Buzzards had a nest, and were "wailing" from the crag. The nest, placed, as usual, on a ledge, and lined with dry grass, contained one egg completely congealed, and much of the color washed out. I had to warm it in water before it would blow, although otherwise it was quite fresh. I got to-day the first Brambling's nest, a beautiful structure, with one very small egg. A Fieldfare's nest had six eggs, fresh. Cuckoos seemed pretty numerous. I shot some Golden Plovers to eat, and was struck with their splendid adult plumage, such as can seldom be obtained at any season of the year in Northumberland. I observe also that the male Bramblings obtained, in breeding dress, on the Dovre Fjeld in Norway, are not nearly so typically adult as those which we obtained in East Finmark.

To-day a Lap boy brought me a lovely nest with seven eggs, badly incubated, of the Great Grey Shrike (*Lanius major?*); and here I may observe that, although I afterwards obtained two more nests and eggs of this species, I was never fortunate enough to get the bird. In all cases the nests were found by the Laps and brought to

me; and although I invariably returned to the nesting place immediately with the Lap, I only once caught a glimpse of the bird, and then I did not manage to secure her. This nest was placed in a Birch tree, about ten feet from the ground, and was made of white grass, profusely lined with the white feathers of the Willow Grouse, with a few binding twigs of birch.

June 14th. A White Wagtail (*Motacilla alba*) had its nest under the turf of the roof of our dwelling, and contained six fresh eggs; the nest was lined with greyish-white reindeer hair. Two nests of the Redwing contained five and six eggs; one of them was on the ground in a bank, entirely concealed by an overhanging juniper bush, and the eggs were much incubated. Although the fell lakes were still completely frozen, Arctic Terns (*Sterna macrura*) were hovering over some of them, and on two small islands which we reached by walking across the ice we found two nests, each with two eggs. A singular instance of protective coloration occurred here: two of these eggs were of the most extraordinary color, resembling very rich Merlin's eggs, the other two were of the ordinary green type. The ruddy ones were laid on a rich red carpet of moss, the green ones on green reindeer moss. The yolk and albumen of these eggs was quite congealed with the cold. On the edge of one of these frozen lakes a Redshank's nest contained two eggs. Coming home we found a Mealy Redpole's nest with five eggs, profusely lined with feathers of "ryper," a bird which, by the way, we had not seen or heard since our arrival at Pulmak.

June 15th. Winter seemed to return, for it snowed continuously all day. In a walk along the bank of the Pulmakelf, a tributary of the Tana, we observed a single male Goosander busy fishing, also a pair of Red-necked Phalaropes (*Phalaropus hyperboreus*), very tame, and actively feeding in a quiet backwash of the river. They swim very high in the water, with a jerky motion, nodding their heads like a Waterhen, and are surprisingly quick and agile in their movements. One of them landed and sat, like a tiny Duck, preening his feathers on the bank. They seemed in mature plumage, the yellow stripes down the sides of the back being very conspicuous. A pair of Wood Sandpipers were very tame, and allowed us to come very close to them as they were feeding, wading breast high, in a little pool of melted snow water.

(To be continued.)

Have just taken a fine American Crossbill (*Loxia curvirostris americana*), from a flock of six or seven. Pretty late in the season for this bird. —C. H. Wilder, Wayland, N. Y., June 6, 1885.

Brief Notes.

SONG OF THE WHITE-RUMPED SHRIKE.—Last Spring, during the mating season, a male White-rumped Shrike was accustomed to perch on a giant Soapweed near my door and sing in a very spirited manner. The song was entirely new to me, and quite different from the harsh cry, which I had often heard them utter while searching for food, or perched upon some lone Soapweed stalk on the prairie. As nearly as I can describe the song from notes taken while listening to the bird, it consisted of the following sounds, each note being repeated a number of times then followed by the next in the series, and so on: *Pe-dee, pe-dee, pe-dee, cre-o-o-cep, cre-o-o-cep, cre-o-o-cep; t'chee-t'chee, t'chee-t'chee*; sometimes ending with a long trill *t'-r'-r'-r'-ree—t'-r'-r'-r'-ree*, and at others with a hoarse chatter, sounding very like *chut-it-up, chut-it-up*, when he would dart away to the neighboring hillside, soon returning to renew his song. This continued for several days, when I presume he succeeded in securing a mate for he disappeared and I heard his song no more.—*Charles H. Marsh, Silver City, New Mexico, June 20, 1885.*

OWLS. I notice considerable comment in the O. and O. on the rarity and abundance of Owls, this past Winter. In Ontario County, in the vicinity of Canandaigua, one or two Snowy Owls are usually noticed every Winter. One was shot in December, 1884, and a second was seen in January, 1885; both near Canandaigua. Screech Owls have been quite common, and one in the red plumage was reported as seen, but not taken. One was brought me in the Fall of 1884, which, while referable to the gray phase rather than the red, yet was considerably tinged with reddish.

Diligent and careful inquiry has failed to reveal the presence of any Acadian Owls. I know of no Ontario County specimens, though Rathbun mentions it as a rare bird in central New York. (List p. 27.)

No specimens of the Short-eared have come to my notice. One was taken in January, 1884. All the above data are for Ontario County, N. Y.—*C. H. Wilder, Wayland, N. Y.*

ON DESCRIBING THE COLORS OF BIRDS. Some years ago I had much difficulty in coming to a correct understanding of the terms used in describing the colors of birds. Writers used different names for the same colors and there was no systematic order in the parts described. Ornithologists should, I think, agree on this, and I suggest, first, the upper parts; second, the under parts; third, special markings of the head; fourth, special markings of wings and tail; fifth, bill and

feet; sixth, comparisons and differences of tints on various parts. I adopted this plan in a work which was in the publishers' hands at the time of the Boston fire, and which will probably never see more light than it did then.—*Walter Horie.*

OOLOGICAL SUGGESTIONS—METRICES. Capacity is an important datum, easily ascertained by immersing the egg in a glass cylinder (an Argand lamp chimney will do,) and with a narrow slip of paper fastened to the outside and neatly graduated. By using the metric system much *useless computation* is saved. Weight of egg also, though not so important, may be highly instructive. Here again the metrics will be found of great advantage. I hope I may live to see them adopted in this country. Where their advantages are so manifest as they certainly are to all naturalists, it is strange to me that they have not yet come into use. For myself I still cry *peccari* every time I put down a measurement in inches and sixteenths.—*Walter Horie.*

ALBINO WOODCHUCK. To-day we sent an Albino Woodchuck to New York to have set up. This pure white animal with pink eyes has been seen about the farm, where it came from, for five or six years. It is a female and will be set up in a natural manner by an expert taxidermist.—*S. W. Comstock, Sect. Ornithology, Greenfield, Mass.*

Rare and Curious Birds' Nests.

BY PROF. THOMAS G. GENTRY.

From time immemorial, it has been the current popular belief that birds of the same species never varied their style of architecture, but constructed the same form of nest, and out of the same materials, as their remotest progenitors did, instinct being the principle by which they were guided. This opinion, though long since exploded by science, is still, I am sorry to say, entertained by those who should know better. An examination of nests from different and widely separated localities affords evidence sufficient to convince the most skeptical of persons of its erroneousness. The most marked differences will be noticeable in the composing materials, as these will be found to vary with the environment, and in a wider degree in the nests of some, than in those of other, species. Even the configuration, which is less prone to change, is often influenced by the circumstances of position and latitude.

Among the Thrushes, the Robin is the most addicted to variation, and this is not wholly confined to the constituents of his usually mud-plastered domicile, but is frequently to be observed in the arrangement thereof, and in the contour and position as well. In Southern New Jersey, where low marshy woods abound on the outskirts of towns and villages, Robins build nests which contrast more markedly with what we are accustomed to see in more northern localities. The great masses of a grayish-green fibrous lichen, which hang from tree and shrub in those sylvan marshes, are freely utilized by them, and its very nature to mat, when pressed together, precludes the necessity of using mud.

In the Summer of 1877 my attention was directed to a

nest of this species which was built upon a railroad embankment. The ground had an inclination of forty-five degrees. To one not conversant with the facts, such a position for a structure of the kind these birds are known to make, would appear impossible. Difficult as the task must seem to be, when viewed from a human standpoint of judging of the builders' capabilities, it was nevertheless accomplished, and in this wise: A semi-circular wall of mud, some three inches in height, was, after much labor, erected, and within the cavity thus formed was placed a coarse, substantial and bulky fabric.

Few birds are less regardful of position than the Wren. In June, 1882, near the town of Thornbury, Pa., a pair of Wrens selected the space in a stationary block over a sheave in a derrick, as a site for a home, and therein deposited their favorite sticks and feathers. A similar structure had occupied the same spot the previous year, and a brood of young ones raised. These nests, in the elements of composition, differed not from the typical form. It is their strange and anomalous situation, rather than anything else, that excites our interest and astonishment. The materials of the nest were so dexterously arranged as not to interfere with the revolution of the wheel. The entrance to the nest was on the side facing the rope that moved the pulley. The opposite side could have been used for this purpose, and doubtless with less danger to life or limb, but a preference seems to have been shown for the other. Why this was so remained an unsolved problem for some time; but when each bird was seen to alight upon the rope at the top of the derrick and ride down to the nest, the reason became apparent. Never did Linnet enjoy the rocking twig with half the zest that these eccentric creatures did their ride down the rope. A hundred times a day, when the necessity arose, they treated themselves to the same pleasure, the rope moving at the rate of thirty-five feet in a second of time. Six days out of seven, from morning until night, they had the benefit of this mode of conveyance, and nothing occurred to disturb their peace and harmony. In due time a family of happy, rollicking children was raised, and the nest in the derrick deserted.

Before me is a curious nest of the Swamp Blackbird. This is a rather bulky affair for the species, and was found built in the top of a cluster of cat-tails. It is firmly made of broad grasses, and securely fastened to the stems of the reeds, some eight in number, by the same kind of material that enters into its composition.

Icterus spurius, of the sub-family of Orioles, constructs a truly characteristic nest, pouch-shaped in form, and either pensile or built upon a branch. Soft and flexible grasses, neatly and compactly woven together, constitute its outer fabric, while within there may exist wool, either vegetal or animal, or a lining of fine grasses mixed with horse-hairs. The handsomest nest I have ever seen was found by Richard Christ, in the vicinity of Nazareth, Pa., in the season of 1883. It is of the usual size, being five inches in height, and three in external diameter, but different from the typical form in the materials of composition. Instead of the leaves of grasses, which one naturally expects to see in such structures, this was exclusively built of the stems and heads of a species of gramineous plant remarkable for its golden brightness in a state of dryness.

A more remarkable nest of this Oriole was found built upon a few small branches of a Maple, at an elevation of nearly thirty feet from the ground. It is a double affair, composed of long, flexible grasses, and securely fastened to its support. The larger nest is inversely sub-conical, while the smaller, which is joined to the other by ribbons of grass, is somewhat similarly shaped, but less compact in structure. A circular opening, one inch in diameter, is a

noticeable feature of the latter. That this additional structure served some purpose cannot be questioned. I am inclined to think that it was constructed with the view of accommodating either parent while the other was sitting. The aperture alluded to served, doubtless, for the head of the non-sitting bird, who, from this position, looking away from the main building, could, like a sentry upon an outpost, detect with comparative ease and readiness the approach of enemies.

But nothing can exceed in beauty and cosiness the nest of a female Baltimore Oriole in my possession. It was built under peculiar circumstances, the author being a prisoner, having been taken from the parental home when quite a fledgeling. A male companion was captured at or about the same time. These birds are the property of Dr. Detwiler, of Easton, Pa., and are a source of pleasure to this elderly gentleman in his leisure moments. Though becoming quite tame under the careful and kindly management of their keeper, the female manifesting greater familiarity than her associate, it never occurred to the Doctor that either would become so accustomed to the situation as to evince a desire to build. When alone, he always allowed them the freedom of his studio, in or out of season. One lovely June morning in 1883, the outside world being full of joy and life and sunshine, he threw open the door of their cage, and settled himself for reading. Hardly had he read a dozen lines when he felt something pulling at his hair; on looking up he described the offender flying towards a distant part of the room with something in her bill that resembled a hair. When the Doctor had resumed his reading, she stole cautiously forward, seized another hair, and was off in a twinkling. Permitting these liberties for a while, and noticing that bits of strings were, when placed in positions to be seen, as much the objects of interest as the hairs of his head, he was not slow in divining the motive which led to this strange and unexpected proceeding. Convinced by actions as significant as words themselves could be, he at once entered into the idea of his little feathered friend, and began to look about for a room where she might carry out her plan for the future, free from human interference. In a short time a place was found in the attic, which he fitted up, furnishing it with a large branch for a perch, and with the necessary materials, in the shape of new white strings, for nest building. The female now entered into her voluntarily imposed task with the most determined zeal and alacrity, and at the end of a week had constructed a domicile which her wild, untamed prototypes of the fields and the roadsides would strive in vain to excel.

In Eastern Pennsylvania, rare, curious nests of the Acadian Flycatcher are often found. Such a one was discovered by the writer in June, 1882. It was placed upon the forked branch of a small red Oak. The dried blossoms of the Hickory, the sole materials of the ordinary structure in this latitude, were wanting.—*The Musciv.*

CORRESPONDENCE.

COLLECTOR'S GUNS. *E. F.*, will find some observations on this subject in our April and June numbers.

TO KILL WOUNDED BIRDS. (*C. Milwaukee, Wis.*) "Squeeze the bird tightly across the chest, under the wings, thumb on one side, middle finger on the other, fore finger pressed in the hollow at the root of the neck, between the forks of the merrythought. Press firmly, hard enough to fix the chest immovably and compress the lungs, but not to break in the ribs. The bird will make vigorous but ineffectual efforts to breathe, when the muscles will contract spasmodically and you can tell by its limp feel and motionlessness that it is dead."

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No. 8

Mississippi Valley Migration.

BY PROF. W. W. COOKE, MOORHEAD, MINN.

In this number will be found the names of the new stations and observers this year in the Mississippi Valley. It will be noticed that the new stations are lettered to indicate their geographical relation to the stations of last year. All old stations retain the same numbers as before. The list comprises eighty new stations and eighty continued from last year, but of these eighty new ones, several are merely changes of address of last year's observers, so that the real numbers are about ninety of last year's and seventy new observers.

Among these new men are many most excellent ornithologists whom we are most glad to welcome to our ranks. A great effort was made to fill up the parts of our district which last year lacked observers, but with a few exceptions it proved impossible. The reason is very simple; there are no persons there who are sufficiently acquainted with birds to report their movements. There are whole counties in the Southern States and on the western plains, that do not contain a single ornithologist.

The bulk of this Spring's reports have now been received and they contain an immense amount of valuable material on the subject of migration. Their volume is about the same as last year's, but the notes will on the average be much more accurate and trustworthy. It is evident that all the observers have profited by last year's experience.

List of New Stations and Observers for the Year 1885.

NO.	LAT.	STATE.	CITY.	NAME.
10a	37.43	Ill.	Shawneetown.	C. J. Lemen.
10b	37.43	"	Shawneetown.	Geo. Reorden.
14a	39.12	"	Hillsborough.	E. J. Edwards.
16a	39.34	"	Paris.	John A. Balmer.
22a	40.41	"	Peoria.	W. S. Cobleigh.
25a	41.36	"	Tampico.	Burton Brown.

28b	41.42	Ill.	Fernwood.	Geo. B. Holmes.
38a	42.34	Wis.	Clinton.	C. Crotsenburg.
38b	42.34	"	Clinton.	A. B. Wilcox.
39a	42.39	"	Janesville.	H. L. Skanlem.
40a	42.55	"	Stoughton.	Z. L. Weiman.
40b	42.55	"	Stoughton.	W. W. Gilman.
40c	42.55	"	Ft. Atkinson.	F. H. Webb.
41a	43.	"	Milwaukee.	W. B. Hull.
41b	43.	"	Milwaukee.	Chas. A. Keeler.
47a	43.31	"	Portage City.	T. P. Camp.
52a	44.30	"	Green Bay.	J. A. Shoemaker.
52b	44.30	"	Green Bay.	R. R. Byram.
53d	44.36	"	Durand.	E. L. Brown.
53e	44.45	"	River Falls.	O. G. Libby.
53f	44.58	"	Robert's Station.	F. M. Style.
53g	45.09	"	New Richmond.	W. S. Libby.
53h	45.35	"	Luck.	J. P. Peterson.
53i	46.50	"	Bayfield.	A. I. Sherman.
55a	29.34	La.	Houma.	E. C. Wurzlowl.
56a	30.	"	New Orleans.	G. Kohn.
59a	37.08	Mo.	Reeds.	S. A. Ball.
60a	38.14	"	Butler.	Harvey Clark.
66b	40.20	Ia.	Keokuk.	M. Meigs.
66c	40.43	"	Denmark.	Col. G. B. Brackett.
67b	40.50	"	Burlington.	John Ingraham.
74a	41.36	"	Des Moines.	J. B. Green.
75a	41.38	"	Iowa City.	H. L. Bond.
75b	41.38	"	Iowa City.	W. M. Clute.
78a	41.44	"	Grinnell.	L. Jones.
78b	41.44	"	Grinnell.	Prof. H. W. Parker.
81a	42.18	"	La Porte City.	Harry Peck.
81b	42.18	"	La Porte City.	Norton Peck.
82a	42.28	"	Sioux City.	Alex. Scougal.
84b	42.59	"	State Centre.	H. S. Williams.
85a	43.08	"	Emmetsburg.	Rev. C. E. Cline.
86a	43.26	"	Spirit Lake.	A. A. Mosher.
87a	43.58	Minn.	Albert Lea.	Pres. R. B. Abbott.
89a	44.01	"	Rochester.	W. D. Hurlbut.
90a	44.26	"	Lake City.	E. A. Wise.
91a	44.32	"	Red Wing.	G. Graham.
91b	44.32	"	Red Wing.	H. Willard.
91c	44.32	"	Red Wing.	L. Hancock.
93a	44.55	"	Excelsior.	L. D. Perkins.
93b	44.55	"	Excelsior.	F. Diamond.
93c	44.57	"	St. Paul.	H. W. Slack.
94a	45.	"	Minneapolis.	U. S. Grant.
94b	45.	"	Minneapolis.	Prof. C. L. Herrick.
94c	45.	"	Minneapolis.	Franklin Benner.
94d	45.	"	Minneapolis.	Mrs. L. F. Tinsley.
94e	45.	"	Minneapolis.	F. L. Washburn.
98a	45.32	"	St. Cloud.	H. P. Bennett.
99a	46.56	"	Moorhead.	W. W. Cooke.
100a	47.04	"	White Earth.	Mrs. C. A. Cooke.
102a	29.27	Tex.	San Antonio.	Bro. M. Newall.
102b	29.27	"	San Antonio.	Prof. G. Jenny.

102c	29.27	Tex.	San Antonio.	H. P. Atwater.
103a	30.20	"	Fedor.	Rev. G. Birkman.
106b	32.44	"	Ft. Worth.	N. P. Ball.
106c	33.34	"	Bonham.	H. F. Peters.
112a	38.21	Kans.	Emporia.	V. L. Kellogg.
112b	38.21	"	Emporia.	B. L. Bennett.
113b	38.34	"	Richmond.	Wm. S. Smith.
115a	39.03	"	Topeka.	J. F. Williams.
119a	40.48	Neb.	York.	N. A. Sherman.
123a	43.50	Dak.	Grand View.	A. M. Blanchard.
125a	44.21	"	Huron.	Geo. Wilder.
127a	45.55	"	Valley City.	H. H. Parkhousec.
127b	47.01	"	Steele.	Thos. Russell.
131a	47.68	"	Minto.	Fred Twamley.
131b	48.04	"	Johnstown.	Will Dean.
131c	48.50	"	Ft. Totten.	W. C. Bennett.
135		Man.	Dalton.	Miss Lottie Yeomans.
137		"	Shell River.	E. Calcutt.
138		"	Ossowo.	Frank Wagner.

Numbers of last year's observers (as given in O. and O., vol. 9, p. 51) who are also observers this year:

1, 2, 5, 8, 12, 14, 15, 19, 21, 23, 25, 28, 29a, 30, 32, 33, 34, 38, 39, 41, 42, 44, 45, 46, 48, 48a, 49a, 50, 53, 53a, 53b, 54, 56, 57, 58, 59, 61, 62a, 64, 65, 66, 66a, 67a, 68, 69, 70, 71, 72, 74, 75, 77, 78, 79, 84a, 86, 88, 89, 90, 91, 92, 93, 97, 98, 101, 104, 107, 113a, 116, 119, 120, 121, 122, 123, 128, 129, 130, 132, 134, 135.

Observers who are no longer in the towns from which their addresses were published last year:

10, 22, 36, 43, 49, 51, 53c, 60, 73, 76, 87, 93, 102, 109, 111, C, 131.

A Ramble in Bristol County, Mass.

BY F. W. A.

It was my pleasure to spend a short time in the collecting field in latter May and early June with a genial friend, Mr. F. H. C., a keen and accurate observer, and one whose knowledge of Bird Life was seemingly inexhaustible. We confined our trip to Bristol County, which we traversed from east to west, new fields were visited, fresh grounds hunted over, and numerous new phases in Bird Life were brought before us.

May 30th a new colony of Bank Swallows were found holding possession of a sand bank which bordered a small creek, over which the Swallows were flying hither and thither, now skimming over the meadow, which lay near at hand, or mounting high in the air in pursuit of insects. Their conspicuous little holes bored two feet from the top of the slightly overhanging bank were not completed, nor were they this season, for on passing that way June 6th, we found that ruthless hands had done their work, some boys having torn out their holes, causing the swallows to desert their

already newly formed settlement and to seek new homes. The Bank Swallow, though formerly common in Bristol County, are fast decreasing in numbers, only one breeding place now known of a few pairs, to three colonies in '81. Fresh sets of four and five eggs were taken June 5, '83, and June 6, '84; none this year. The Oriole and Least Flycatcher were found nesting in the same old Buttonwood by the rustic bridge as last season, and a nest was found of the Summer Yellow Bird containing two eggs in the same clump of wild Rosebushes that a nest containing five eggs was taken May 30, '85. The rare Summer resident, the Great-crested Flycatcher, was first seen May 30th, with its erectile crown and its whistling note of tu-whit, tu-whit, which it uttered at intervals while in plain view. This noisy bird was seen or heard at intervals in several different localities during the first week of June. They were found frequenting either light timbered groves near open land or old orchards, which are occasionally met with in the midst of woods in Massachusetts. We started early on our tramp June 1st, which led us out through Raynham and the surrounding suburbs. The Warbling Vireo, which is plentiful here this season, was heard singing in the tops of the Elms which lined both sides of the road. Several nests of the Least Flycatcher were noted, but with incomplete sets. Hardly had we left the busy haunts of man before the scolding Wood Thrush was heard from a grove of mixed growth, while opposite in an orchard the notes of the Black Poll was heard. We soon left the traveled road and entered the woods, coming after a short walk to a mossy orchard, where we took a nest containing four eggs of the Blue Yellow-backed Warbler from the same moss covered tree that a set of a similar number was taken last year. While taking notes our attention was drawn by the chattering of a Maryland Yellow-throat near at hand, and thinking she must have a nest, we hunted through the few low bushes in the vicinity and discovered the nest placed on the tussock of grass, and nearly concealed by the overhanging leaves. A noticeable feature of this nest was the twining in of the long hanging moss which she had taken from the trees. This nest contained a set of five eggs June 9th, which were fresh. Here the White-eyed Vireo was heard singing, and as we came out to the road the Scarlet Tanager was seen, his bright colored plumage conspicuous against the background of green leaves. A hole in a Birch stump was next inspected, when out flew the inmate, a Black-capped Chickadee. Upon opening the hole a set of eight eggs were disclosed to view, partially incubated; nest composed of the usual ma-

terials. Farther along my friend's sharp eye caught sight of another hole in a low Birch stump near the road, which upon being rapped, out flew the Chickadee from her nest, which contained eight fresh eggs. Another orchard visited where for years past sets of the Blue Yellow-back had been collected, but now all was still, save the Wood Pewee and the Great-crested Flycatcher. Continuing along on our journey, we pass through beautiful groves, shady and cool, and soon come out near a barn, under which a nest of the Phoebe Bird containing four eggs, was found built upon the one of the previous season, making the nest nine inches in height. While passing along a swamp road bordered on either side by light open woods, interspersed with a scrub growth, a Chewink was flushed from her nest, placed on the ground partially concealed from sight by the overhanging grass, which contained four fresh eggs. Baltimore Orioles were found breeding very common, no less than eight nests found during to-days walk. A nest of the Least Flycatcher found June 2d, contained three eggs, one of which was nearly as small as a Humming Bird's. While walking along the pike which leads out through western Bristol County, another nest of the Black-capped Chickadee was found in a Birch stump, which contained seven eggs, incubation commenced. While at lunch a set of seven Flickers were taken from an Ash tree, another set of eight were taken in a grove of mixed growth, from a dead pine stump. These differed in incubation, it being the second set, a first one of the same number having been taken May 18th. Summer Yellow Bird, Cat Birds and Brown Thrushes were found breeding plentifully. Another nest of the Maryland Yellow-throat was found while walking along the bank of the Palmer River, which contained five eggs. Two nests of the White-bellied Swallow were noted, one in an Apple tree and the other in my friend's barn, which contained six and five eggs respectively, the latter being a second set of the same number as the first, which was taken May 22d. June 3d we arose at 2 o'clock, and after partaking of a hearty breakfast prepared for a trip to a colony of Cliff Swallows under a distant barn. After packing our knapsacks we donned our hunting coats and started *ad modum* "Johnnie" across the fields. After a walk of a few miles we came to the barn, and started the Swallows from their bottle-shaped nests, which were placed in rows, securely fastened along the beams. These were very brittle and lined with hay and feathers. A bird was examined and the chestnut patch on the forehead found very noticeable. Several sets were taken, as that is the only colony that I have met with in

Bristol County, and which I had the opportunity of visiting through the kindness of my friend. In an orchard opposite and a short way from the road my friend noticed a natural hole in the trunk of a medium sized Apple tree about sixteen inches deep on the bottom; noticed feathers and castings which led him to believe it was a used nest of the Screech Owl. Here a male and female Great-crested Flycatcher were conspicuous, and were evidently seeking a nesting site. We left them to perform their labor, and continued on our journey, which now led us through a long wood road bordered on either side by groves of Chestnut and Beech, where the chip chur of the Scarlet Tanager was frequently heard above the less noisy birds. We are gradually ascending rising ground and at last emerge upon the crest of a hill, from which a beautiful view is to be had. Here a Birch stump near the road attracted our attention, which was found to hold a nest of the Black-capped Chickadee containing seven fresh eggs. Renewing our walk we came to a large mossy orchard in the midst of mixed woods. In this orchard, which was composed of old Apple trees, from which the long Spanish moss (*Usnea*) hung in profusion, were found a pair of Great-crested Flycatchers, which were heard some time before we reached the place, their peculiar sharp cry, which shows their pugnacious, irritable disposition, could be plainly heard above all other birds in the neighborhood, and could not fail to draw the attention of one interested in the study of birds. That we were regarded as intruders on their territory was evident from the manner in which they received us, flying from tree to tree or hovering overhead as we ate our lunch, scolding with erectile crown and ruffled feathers. That they had either chosen their nesting place or were about to do so was apparent from their hostile appearance. My friend had the good luck to find the nest June 17th. It was placed in a hole in the trunk of an Apple tree, cavity lined with rabbit's hair, feathers, chaff, and a few bits of snake skin, upon which the set of four eggs were laid. The parent bird did not flush until he peered into the hole; incubation commenced. Here it was in this large mossy orchard that the Blue Yellow-backed Warbler was found and studied to advantage. We calculated that no less than twenty pairs were in the vicinity, as a number of the birds were constantly heard singing in the orchard and a cedar growth near, from which the *Usnea* also hung plentifully. Their nests varied in size and shape; some were deep and nearly concealed in the thick hanging moss, while others were shallow and globular and were much smaller in external appearance. They were generally

placed near the end of a limb or branch; the average height from the ground was about fifteen feet though cases have come under our observation of their nesting within three feet. Of seven nests found June 3d four contained sets of four each, while but one was found holding five, the others were incomplete sets. June 4th a nest was found fifteen feet from the ground containing four eggs, which were advanced in incubation, while June 6th a fresh set of the same number were obtained in a different locality. There are several mossy orchards and lone trees where these handsome Warblers breed in Bristol County, but none that can compare either in size or richness with the one in question. Two exceptional cases were noted this season in regard to the nesting habits of this Warbler; the first occurred June 3d as we were walking along a wood road bordered on the one side by an Oak grove and on the other by a young growth of scrub. My friend's quick eye espied a tiny smoothly woven nest of this bird in an Oak sappling about fifteen feet from the ground and close to the trunk, which contained two fresh eggs. There was no moss whatever on the tree with the exception of the cup shaped nest. This confirmed the belief which I had previously had that they bred apart from the trees or tree which contained the long flowing moss, but in eight years collecting this is the first case that has come under my observation. The second one was still more remarkable, for the bird forsook her usual retirement altogether and placed her nest not far from a house on the dead limb of an Elm tree, about twenty feet above the well traveled road, and four feet from the trunk. The dead limb was well covered with lichens and wood mosses, which entered largely into the composition of the nest. The lower part of the nest was all that contained any of the *Usnea*, a little being woven in with fine but dry stiff grass and horsehair. The opening was nearly concealed by the stiff wood moss, which was twice as thick at the top of the nest. This very curious nest contained but one fresh egg June 6th. In the afternoon of June 3d we rode out through Seekonk and viewed the nesting place of the Barred Owl, from which three sets have been taken this season, one of which adorns my cabinet, given to me by my friend. The nest or rather hole was in a Walnut tree; the opening was about two feet high and six inches wide at the widest place, the bottom of the cavity was nearly level with the opening, only a few bits of dead wood keeping the eggs from rolling out. While taking a sketch of the tree our attention was called away by the anxiety displayed by a Golden-crowned Thrush, which led us to believe there was a nest in the vicinity. We conjectured rightly for in a few moments it lay before us, containing

four fresh eggs; the nest was arched over in the usual manner and composed of leaves, straw and cedar bark strips and lined with a few horsehairs. A few other nests were discovered while riding along, and a Downy Woodpecker visited which had been previously discovered; it contained four eggs, incubation commenced. A nest of the same species was visited June 1st, from which the young had flown, which is but one case which goes to show the variance in the breeding time of birds, even of the same family. Following the bank of Palmer's River for a short distance we found Redstarts breeding plentifully; one nest placed in the triple crotch of a Swamp Maple about five and a half feet from the ground containing four fresh eggs, around which the female was hovering in company with her conspicuous, handsome mate, who evinced great anxiety for the safety of her domicile. Another nest of the Black-capped Titmouse was found June 4th, containing six eggs, from which the occupant flew on our rapping the old Chestnut stub. On emerging from the woods we entered a ploughed field, where in an Apple tree we discovered a Redstart at work on her nest, which she was shaping, placed about twenty feet from the ground. While crossing an adjoining pasture, the ground covered with low tangled briars and trailing vines, a Maryland Yellow-throat was flushed by my friend from a nest containing five beautiful, fresh eggs. Coming out on to a well traveled road and walking along its side, we flushed an Oven Bird from her nest within three feet of the road, with the back of the nest towards it; it contained five eggs which were partially incubated. Entering the fields once more a Field Sparrow was flushed and my friend discovered the nest, which was placed near the ground in dry grass weed stalks, composed of grass, small twigs and lined with finer grass. This is the first one I have ever met with in Bristol County, they being local in their habits in this vicinity. June 6th the commoner varieties and early breeders were found well along in house-keeping, most of the nests found containing partially incubated eggs, though the late breeders had hardly commenced, especially the Vireos and Woodpeckers. Another nest of the Blue Yellow-back was found containing four fresh eggs, placed in an Apple tree in a Pine grove, where I had taken sets several years before. My friend visited the large orchard again June 17th and 20th, and found that the Warblers had newly built nests and completed sets, of which he obtained seven sets more, each containing four fresh eggs. Many of the commoner varieties have been rare this season while those that ranked tolerably common or rare have in several cases been plentiful.

Our Three Herons.

BY E. C. W.

As the result of a visit to a Heronry in June, 1884, my brothers and I became the possessors of three Little Blue Herons. They were but partly fledged when we deprived their parents of them, and took them under our care and protection. We fed them freely on raw beef, of which they were very fond. They grew rapidly, and were soon fledged in snowy white plumage throughout, except the black primaries.

As they progressed towards adolescence, each one began developing characteristics and a disposition; so that they were early distinguishable by their mien and behavior.

I introduce them successively, as to their vigor, as Unus, Duo, and Tres. They were all three more or less pugnacious; but my favorite, Unus, like invincible John L. Sullivan, held the championship. His irascible temper caused his brother Herons to hold aloof from him. Duo was rash enough one night to attempt to share the part of the roost that Unus occupied, and, as a consequence, Duo withdrew from the combat that ensued with his crest deplumed. He did not limit his disputes to his brother Herons alone, but had frequent contests with the pigeons and chickens that were denizens of the same yard, and was always victorious. With feathers erected, wings partly open, head raised to its utmost, and his amber-yellow eyes expressive of fierce anger, he advanced to the combat and met the attacks of his adversary by bringing his long bill vehemently down on him, causing the feathers to fly—and his adversary likewise. He allowed no children to approach him, and would boldly attack them.

Unus was very fond of me. Whenever he saw me approaching, he would hasten to my side, uttering incessantly, meanwhile, "keedle-keedle-keedle." During my absence from home for a few weeks, he anxiously looked for my return. He daily searched for me in my accustomed places, and not finding me, mounted to a roof and expectantly watched for my coming. It was during this time that he one day had a scuffle with Tres, resulting in their losing their balance and falling into a cistern of water. Unus saved himself by using Tres as a raft, thereby drowning the latter. On my arrival home Unus was overjoyed to see me, and expressed his delight by caressing my shoes with his bill.

In September and October the two remaining Herons would daily station themselves on the roof of an old house. This was for the purpose of watching the Night Herons pass by every

morning and evening. The grating cry of these birds as they winged their way overhead, were answered by our Herons on the house-top. Although interested in the flight of the Night Herons, they never attempted to leave us.

I found Unus dead one day last January, on the edge of the bayou near which we live. The air was chill, and while standing on a plank that extends a little over the water from the bank, he probably fell in and before he could reach terra firma was overcome by cold and drowned.

Only one of the three Herons now remains to us. When hungry he stalks down to the bayou, catches and makes a meal of some of the inhabitants of the grassy shallows. He wades cautiously lest he alarm the prey. Espying a minnow or crayfish among the grasses he stretches his long neck out at an obtuse angle, then launches his bill at the object of his aim, seizes and devours it. He is, also, an adept at catching flies, as were also the other two Herons. If not fishing he stations himself sentinel-like on a shed that commands a view of the bayou, and any commotion in the water below will call forth loud admonitory squawks from him.

The change of his plumage began last December, and he has now nearly all of his slate-blue feathers, only a few light ones remaining, which are fast becoming blue, and a few weeks hence will find him clothed in the complete dress of the adult of his species.

Spring Shore Bird Migration at Cape Cod, 1885.

BY J. C. CAHOON.

Monomoy island at which the following notes were taken, is a sandy island situated about southwest from the bend or elbow of the southern part of Cape Cod, at which is located the town of Chatham. The island is eight miles long, and one-half mile wide at its greatest extent. Its greatest altitude from the level of the water is about thirty feet. The island is covered with a coarse grass, moss, ivy, and beach plum bushes. In several low wet places there are small swamps. The island was originally connected with the mainland, but is now separated by a pass. At the north end of the eastern part of the island, is another smaller island, which is separated from the main island at high tide, but is connected by dry flats at low. On the small island are three houses owned by three branting clubs, Boston, Providence and Manchester. To the north and west are flats, which extend for miles and miles. These flats are covered with several feet of water

at high tide, but are almost dry at low. These flats have been from time immemorial, a great resort for shore birds in their Spring and Fall migrations. Of late years gunning has greatly decreased about here, and where a few years ago many flocks of large birds landed, not more than one out of a dozen touches to-day. Breech-loading guns, market gunners and city sportsmen are fast exterminating these birds.

I arrived at the island May 7. Found Red and Buff-shouldered Blackbirds abundant. They commenced to lay about the first of June. Song and Savannah Sparrows abundant. They commenced to lay about the last of May. About a dozen pair of White-bellied Swallows were seen. Commenced to lay about May 30. Build in boxes put up by the fishermen. Spotted Sandpipers common; commenced to lay about the 3d of June. Meadow Larks common; commenced to lay about May 15. Piping Plover common; commenced to lay June 1st. Saw large flocks of American Sheldrake out in the bay. Last one seen June 9. Brant common; last one seen May 17. Loon abundant; last one seen about June 13. Started one Black Duck from a small salt hole on meadow. Saw three Greater-Yellowlegs, which became common the next day, May 8th; last one seen June 6. American Herring Gull abundant; last one seen June 24. Four Black-bellied Plover, three ♀ and one ♂, put in an appearance May 8. The same four were seen again May 9; became common May 15 and abundant May 27; last seen June 10. Two Semiplumated Plover were seen May 11; became common the 21st and abundant May 21. Did not see any after May 26. Three Semiplumated Sandpipers arrived May 12, and the birds became abundant May 16; last seen June 24. Four Arctic Terns arrived May 13 and were reinforced May 19 by a large number. They remained near the flats until about the 15th of June, when they began to diminish. A few Sanderlings arrived May 13 and were seen in small numbers until June 27. Roseate Terns arrived in small numbers May 19 and remained until about the 15th of June. Common Terns arrived in large numbers May 13, and many remained through May and June. A few breed on the island.

Collected a ♂ Pintail Duck in company with a ♀ May 13. Least Sandpipers arrived in full force May 13 and were abundant on the salt meadows until about June 1. Three Least Terns arrived on the afternoon of May 15; became abundant May 19; first young seen June 13.

May 17, I saw several Bonaparte Gulls on a sand bar. Did not see any after May 29. A

bunch of about two dozen Red-breasted Snipe arrived May 20. Saw but one afterward, May 22. Saw a bunch of Turnstone May 20; next seen May 25; last seen June 24. Saw an adult ♂ Blackburnian Warbler feeding in the grass on a sand hill near salt meadow. May 20, also shot a ♂ Black-poll Warbler in a low bush the same day. May 23, saw quite a number of Jaegers. One marbled Godwit shot. Found about six Sharp-tailed Finches on salt meadows near a small salt pond. Found them quite abundant May 28. First nest found June 12. About twenty or thirty pair breeding. May 29 collected a Red-backed Sandpiper out of a flock of Sanderlings. Two Hudsonian Curlew arrived June 3 and one stopped until June 25. June 8, saw a Hudsonian Curlew.

A Catalogue of the Birds of Kalamazoo County, Mich.

BY DR. MORRIS GIBBS.—PART VI.

103. [254.] *Spiza americana* (Gm.) Bonap. Black-throated Bunting. Not observed here until about 1875. Has become common only within the last seven years. One of the birds evidently which follows in the wake of civilization, and is more common around fields and pastures where there are few trees. The birds are only found here on prairies or near their edges, and prefer clover fields as their haunts. Not having sufficient data, it will not be proper to offer remarks on arrivals, nesting habits, &c., for the present as I have known the species for only six years. Breeds abundantly.

104. *Passer domesticus*. English Sparrow. Common resident. Breeds extravagantly.

105. [257.] *Dolichonyx oryzivorus* (Linn.) Swains. Bobolink. Arrives the first of May usually, sometimes by April 26th. Breeds abundantly. In late July the birds change their plumage and assume a sombre dress, remaining among buckwheat fields until late August, when they leave, presumably for the rice fields of the south. Well-known species of pleasing song.

106. [258.] *Molothrus ater* (Bodd.) Gray. Cowbird; Cowbunting. A common species six months of the year. Appears usually in early April, always by the 15th of the month, and occasionally the last of March. The main body of birds leave us for the south in early October, but many remain until November 15th, and stragglers are seen even later. This immoral pest, the terror of small birds, is well known. It is looked upon by many as polygamous in its propensities, but to my mind might with equal propriety be

called polyandrous. There are certainly many more males seen than females, and the commonly observed practice of several males perched together alone is not evidence of polygamous propensities. I think we may class them with a still more socially detested sect and compare them with the *Oncida* Community, where common rights of all are the distinguishing features.

107. [261.] *Agelaius phoeniceus* (Linn.) Vicill. Red-winged Blackbird. Occasionally observed in February—once on the 8th of the month. Usually observed in early March. Remains until November. It is always gregarious, appearing in flocks in Spring and associating in large numbers during the breeding season. In early July the small flocks begin to form composed of the young of the year and those birds which are through with the nesting duties. By August 15th immense flocks are found and continue to increase until the birds leave us for the south. More eggs can be taken of this bird than of any species of my acquaintance during the season for nesting. I feel confident that I can collect one hundred eggs a day for several days during the height of the nesting season.

108. [263.] *Sturnella magna* (Linn.) Swains. Meadow Lark. A common Summer resident, known and appreciated by all. Abundant from March 20th to October 20th. Observed as early as February 20th. Occasionally recorded in the dead of Winter. Usually depart in November, however.

109. [270.] *Icterus spurius* (Linn.) Bp. Orchard Oriole. A beautiful singer and quite abundant from May 10th to August 30th. Arrives from May 1st to 13th. Rarely seen late in Summer because of its retiring nature and silence. A great musician during May and June while nesting, and scarcely rivalled by any bird of my acquaintance in song.

110. [271.] *Icterus galbula* (Linn.) Coues. Baltimore Oriole. A brilliant plumed, gay-singing species. Abundant from May 10th to July 10th. Scarce after the nesting season and rarely seen or heard excepting in early morning. Arrives about May 1st as a rule, occasionally as early as April 26th. Sometimes not till May 9th. Breeds abundantly.

111. [273.] *Scolopagus ferrugineus* (Gm.) Swains. Rusty Blackbird. Abundant as a migrant only. Observed by March 9th one season,—usually arrives about March 25th. Abundant by April 1st as a rule. All have disappeared generally by April 28th. Sometimes stragglers may be seen in May. They appear again in October and often remain as late as November 10th,

and stragglers may be seen in late November. Sometimes found in straggling flocks by themselves, but more often in company with other members of the family.

112. [278.] *Quiscalus purpureus* (Bartr.) Licht. Purple Grackle. An abundant Summer resident, and with us seven months of the year. Like the other members of the family it often arrives before the snow is off the ground, and I have met with males, which precede the females nearly a week, when the mercury was ten degrees below zero. Their appearance occurs as early as February 28th some seasons, but usually they may be looked for about March 15th. Breed abundantly, in new sections in holes in stubs and dead trees, in orchards and groves and shade trees in regularly constructed nests. Depart usually about October 15th to 20th, but many remain well into November.

113. [280.] *Corvus corax carnivorus* (Bartr.) Ridg. American Raven. Once abundant, but now very rare and only occasionally seen in unsettled districts where heavy swamps are found.

114. [282.] *Corvus frugivorus* Bartr. Common Crow. An abundant species eight months of the year. Found throughout the year sometimes; a condition which does not appear to depend entirely on the mildness of the season. Generally appears in late February and departs in early November, but stragglers are seen as late as December 20th. Breeds abundantly. Formerly very rare indeed, and only common within the last ten years. More abundant each Spring.

115. [289.] *Cyanocitta cristata* (Linn.) Strickl. Blue Jay. An abundant resident. Not so common in severe weather, however.

116. [300.] *Eremophila alpestris* (Forst.) Boie. Shore Lark; Horned Lark. An abundant resident, but not common in severe Winters. Nests early, often ere the snow has all disappeared. Took a set of four eggs April 15th, 1869, when the weather was quite rigorous. The nest was compactly built of wool and very warm, and was situated in a valley and protected from the winds. A second brood is undoubtedly raised, as nests are often found in May and even June.

117. [304.] *Tyrannus carolinensis* (Linn.) Temm. Kingbird; Bee Martin. An abundant resident during May, June, July, August and September. Arrives generally about April 28th, sometimes by the 23rd, of the month, and again not till May 6th. Nests with us in great numbers. Departs from September 15th to October 10th. Stragglers may be observed sitting on old fences even later, but the first cold snap generally causes them to leave for more congenial quarters.

THE
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—AND—

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DESIGNED AS A MEANS FOR THE INTERCHANGE OF NOTES
AND OBSERVATIONS ON BIRD LIFE.

FRANK B. WEBSTER, Publisher,

PAWTUCKET, R. I.

Editor's Notes.

In our September number we shall give the first of a series of articles on Practical Taxidermy, by Mr. F. B. Webster. We confidently expect these papers will be of permanent value to our readers. They will form an important feature of our numbers for the rest of the year.

The "Ibis" for July gives some interesting facts in regard to the British Ornithologists' Union. The total membership is 174, being an increase of twenty-four since the last anniversary meeting. The finances were reported to be in a satisfactory condition.

Obituary.

DR. H. A. ATKINS, LOCKE, MICH.

It is with sincere regret that we find ourselves called upon to record the death of one of our most valued co-laborers. To those who have been readers of the *O.* and *O.* for some years, the name of Dr. Atkins is known as that of a sincere lover of nature and a man of acute observation.

Born August 20th, 1821, in Erie County, N. Y., Dr. Atkins moved to Locke, Ing ham Co., Mich. in 1842, where he began

the practice of medicine which he followed for nearly forty years. He came to Michigan when it was a wilderness, and located among the Indians and early settlers when the country was an almost unbroken forest. Here in the midst of a country the flora and fauna of which offered many points for observation and research, he lived a quiet life, ever learning more of the objects of his interest. For twenty-nine years, he carefully recorded day by day the arrivals, presence and abundance of a large series of birds, and his accuracy and painstaking effort have rarely, if ever, been equalled. His notes, a few of which were inserted from time to time in our pages, were always the result of his own observations. We valued them especially for the care, so plainly shown, with which each stated fact was personally endorsed. For the last few years his health failed him, his letters to us accompanying some short notes show with what increasing toil he pursued the investigations which were his delight. Dr. Atkins had long planned the issue in book form of his many notes on the Ornithology of Michigan, and hoped next year to be able to do it. He did not live to see this accomplished, but we venture to hope that nevertheless some means may be found of bringing his ornithological investigations before the world. Our last letter from him is dated March 26th of this year. He said the Winter had been very severe, and he had been ill—hardly able to sit up—but hoped to improve with the Spring. This was the last we heard of him, until we received notice of his death which took place May 19th, in the 64th year of his age.

We had no opportunity of personal acquaintance with Dr. Atkins, but his letters to us from time to time revealed a kindly heart, full of interest in our success, and zeal for the objects we had in common.

[We are indebted to a valued Michigan contributor for many of the facts required for this sketch.]

Notes on the Zoology of Manitoba.

BY THE LATE T. B. WOOD.

(Communicated by T. H. NELSON to *The Zoologist*)*Concluded from page 103.*

August 11th.—Last week I got five Shovellers, two Black Terns, and an unknown Duck; also paid another visit to the Terns' colony. The Black Tern is first seen in great numbers about the 20th or 21st of June, and is then in full Summer dress, with black breast, head and throat, and dark-grey back. The greatest numbers were found fifteen miles southwest of Brandon, round some large swamps, one of which is about a mile long and half a mile broad. The birds there are as "thick" and noisy as those we saw at the Farne Isles; hundreds were flying over every small pond or slough, had several pairs hovering about, and the air was filled with their cries. I paid a second visit to this place in July, and again on August 6th, when I found great numbers still there, and shot two specimens; they were changing plumage and losing the black on the head and breast. The feet of this Tern are only partially webbed. I never noticed them taking food as other Terns do, but the swamps are full of long grass and reeds, choking up the place, so that even if the birds are feeding it is impossible to observe what they are taking. Ducks, Curlews, Cranes, and other birds are now constantly passing over, showing that the migratory season has commenced.

August 18th.—About the middle of the month I drove out about fifteen miles southwest, and had a good time amongst the wild fowl; my bag was made up of seven Blue-winged Teal, one Green-winged Teal, four Shovellers, two Pintails, one Mallard, one nondescript, two Bitterns, four Yellowshanks, one Coot, one large Hawk, one Grebe, two Black Terns, and a Grey Shrike. One of the Terns was in full plumage, with coal black head and breast, back and tail grey, under tail-coverts and thighs white. We got a Duck in a rather curious manner. I saw a Falcon suddenly drop into a bed of reeds, so walked up until I got within a few yards of the spot, when he rose and I knocked him over; he had struck a Shoveller, which I picked up, more frightened than hurt. I could have killed any number of Sandpipers, Yellowshanks, and Snipe, but as cartridges are precious here, I am obliged to be rather careful of my ammunition.

September 1st.—Late in August I was out at Badger Hill for two days, and had fair sport with the Ducks and Prairie Chickens, getting eighteen brace of the latter. I also shot two large Hawks,

a Woodpecker, a Grackle, and a Thrush. One day we drove within thirty yards of two Deer, but did not get a shot; on the same day we saw a two-year old Bear. The heat is still very oppressive, nearly as bad as it has been all through the Summer; for the last fortnight it has been 114° in the shade. I saw the first flight of Geese this week (end of August) going south.

September 25th.—In the middle of this month I was again at Badger Hill, and added to my collection two Peregrines, a Bittern, several small Hawks, and three kinds of Woodpeckers, and saw many other birds too numerous to mention. Bitterns were very common, and are capital eating. We had a few days' fishing, and caught some good sized pike, ten pounds to twelve pounds in weight. The weather has changed considerably, and Winter is fast coming on; the nights are bitterly cold, with hard frosts. Large flocks of Shore Larks are flying about Brandon, and small birds something like a Black Redstart. Of the two Peregrines I shot, one was when I was out looking for my ponies: I was watching a flock of Sandpipers when the Falcon made a dash at one of them; the Sandpiper at once ran into a pool close by and ducked under; of course the Peregrine missed his aim, but I did not miss mine. The other Peregrine I caught asleep on a tree! I got within 100 yards of a magnificent Eagle one day, but had not my rifle near; on the same day I drove close to a Prairie Wolf, which calmly looked at me and then galloped off.

October 8th.—There has not been much shooting during the early part of October. I generally have a drive along the river, which swarms with Ducks. I have secured an American Wigeon, and fired at an Eagle on the 4th, but lost it.

November 4th.—Ducks are beginning to leave us now, and are going south, but there is still pretty good shooting. I got a Short-eared Owl one morning on going out before breakfast; there was evidently a migration of these birds going on, for they rose at every few yards from out of the long grass, just as they do on the sand hills at Redcar. The country is now covered with snow, but the days are very delightful, and more enjoyable than during the heat of Summer with mosquito plagues. I hear Moose are to be had down at the Souris, so am going there soon. Snow Buntings mingle with the Shore Larks in the streets, and are as tame as our English Sparrows.

November 16th.—The weather is still very cold, and the thermometer registers 20° below zero. I saw a very fine Ermine to-day. Foxes and Wolves are increasing in numbers and boldness. We get an animal like a Mountain Hare here, which turns white in Winter (*Lepus americanus*).

December 25th.—About the end of this month there was a fearful snow storm, and the snow now lies thick on the ground; the cold is still intense, 20° below. My bag of eatable birds this season has been about 300, and includes 129 Ducks, 119 Prairie Chickens, and 14 Bitterns.

January 24, 1883.—It is heavy work shooting in the snow, but I managed about the middle of the month to bag a brace of Ruffed Grouse; they sit in the bushes, and you may almost knock them over with a stick. I also secured a Tanager (*Pyrranga rubra*), very like the American Grosbeak; the bill is black, head, breast and back crimson: wings black and white, and tail black, size about equal to a Hawfinch. There was a pair of them, and I secured the male. On the same day I got a large Shrike and some very good Snow Buntings.

February 22nd.—About the beginning of the month I shot another Tanager, and a third towards the middle of the month. About the 10th I was going out with the gun, when I saw large bird coming straight over me, about sixty yards high. I gave it a charge of No. 2 and down it came. Imagine my delight, when I picked up a splendid male Snowy Owl, pure white, except for three black marks on the wings. The weather is not quite so severe now,—10° below zero, and I have ventured out Wolf shooting, but have not been successful hitherto. One day I saw a few Tits and Redpolls.

March 5th.—At the beginning of this month I shot another Snowy Owl, a female, in speckled plumage. It has snowed heavily for some days, and the Wolves are very daring. I have secured a few and am tanning the skins for mats.

March 11th.—Towards the middle of the month the weather became milder. We shall all be glad when the snow disappears and the grass becomes visible again.

April 25th.—The Spring migration commenced this year almost a fortnight earlier than usual. Ducks put in an appearance on April 13th, and by the 15th large flocks of both Ducks and Geese passed over. The Spring Duck shooting is preferable to that in the Fall; the birds are in so much finer plumage, and the weather, too is more bearable. I append a few dates of Spring observations, which will give a slight idea of what we see here: March 20th, Shore Larks appear; snow still covering prairie and sleighing good. April 10th, saw two Crows and a Marsh Harrier; snow melting fast, trail very bad. 12th, two Ducks going W.; trails broken up, sleighing over. 13th a Mallard shot. 14th, large numbers of Marsh Harriers from 9 a. m., till 1 p. m., a continuous flight going W.; also a few Yellowshanks and

Crows. 15th, Marsh Harriers going W. 16th, large flocks of Ducks and Geese going W., also Marsh Harriers sailing over the sloughs, and a few small birds appearing; small Hawks passing; snow almost gone. 17th, Ducks going W.; Marsh Harriers sailing about; shot at a Yellowshank; large flights of Summer visitors appearing. 18th, a snow storm; shot two Mallards, saw a Yellowshank; tried to stalk a Goose on the ice on the river, but failed; saw a Short-eared Owl. 19th, shot a Mallard; saw Pintails, and a friend shot a Marsh Harrier. 20th, saw Robins and Black Grackles (*Scolecophagus ferrugineus*) in large flocks, also a few Pintails and one flock of Green-winged Teal; a Goose shot; a friend shot a male Scaup and a Green-winged Teal. 21st, I shot three Mallards and a Green-winged Teal; a friend shot a snipe; saw a Peregrine and several Snipe. 22nd, saw two Sand-hill Cranes going N. 23rd, ice on the river breaking up. 24th, a friend shot a male Pintail; river almost clear. 25th, Anemone in flower; grass showing green.

May 9th.—About the end of April I saw a Woodpecker, and shot a fine Buffle-headed Drake—a grand specimen. On the 28th I observed a Ring Plover (*Ægialitis semipalmatus*). On the 29th shot a Pochard; saw numbers of Snipe, Sand-hill Cranes, Martins, and a Short-eared Owl, also a Butterfly like a Camberwell Beauty. Early in May I got specimens of Meadow Larks (*Sturnella magna*), Red-winged Starlings, and Buntings; and on the 8th saw eight Lesser Yellowshanks (*Totanus flavipes*). By the first week of May most of the Ducks had arrived, but the large flights of Blue-winged Teal had not yet appeared. Thus far the Ducks noticed this Spring are Mallard, Pintail, Shoveller, Scaup, Pochard, Buffle-head, Blue-winged Teal, Green-winged Teal, Wood Duck, Butter Duck, (Buffle-head), American Wigeon (called "Summer Duck" by the Indians), and a Duck very like a Scaup, which I am not able to identify. [Probably the American Scaup, *Fuligula affinis*.—ED.] Two friends of mine were away shooting in the second week of May, and brought home (amongst other birds) three Slavonian Grebes, an Esquimaux Curlew (? footnote, p. 103), and a Canvas-back Duck.

May 25th.—The close time begins on May 15th for all kinds of wild fowl, so I had a last day before the season ended; my bag was thirty-seven head, including four Plover, a Buzzard, Bittern, and two species of Grebe, ten Eared and Slavonian Grebes. Since then I got a Golden Plover in full Summer plumage, and a Ring Dotterel exactly like our Tees-mouth friend; when I picked it up I could almost imagine myself at Redcar again. [Doubtless *Ægialitis semipalmatus*.—ED.] A

great many Gulls passed over here about the middle of May, and I also heard that the Black Terns had arrived at their breeding quarters. The Blue-winged Teal is now in great force; in fact, most of the Summer birds have arrived. The weather now (end of May) is very hot, and the mosquitoes are beginning to be troublesome. Last evening I saw a Goatsucker and heard the Whip-poor-will.

June 4th.—Early in June I had a ramble out to the Brandon Hills, eight miles south of here. I discovered a lake, about a mile long by about half-a-mile broad, full of Ducks; it is right amongst the hills, which are clothed with woods on two sides of the lake. I was looking for the Wood Duck, but not seeing any on the lake did not disturb the fowl there. In wandering through the woods I spied a mighty nest of large twigs in a tree on the edge of the lake. On my approach a bird flapped off, and I promptly shot it, when I found it to be a fine Red-tailed Buzzard; I shot also a Yellow-headed Grackle (?).

June 20th.—In the middle of June I was out at Plum Creek, thirty miles southwest, where I added a few birds to the collection. Amongst others I got three Phalaropes, a few Black Terns (of which there were large numbers), and a very good Bar-tailed Godwit, *Limosa fedta*, which I found breeding there. I also found numbers of Ducks' nests, the eggs all incubated, except two Blue-winged Teal's. A Black-headed Gull was following the plough just as they do in Northumberland. In the first week of July I noticed a flock of these Gulls flying round, screaming and coming quite close to where I was standing. They appear to be very like our English Black-headed Gull, but I did not manage to get a specimen for identification; they breed on some large lakes or sloughs round Portage. I shot a couple Dunlins in Brandon one day, and so have added this species to my collection. The eggs of many birds which are considered rare in England are easily obtainable here, *viz.*, Marsh Harrier, Shore Lark, Buzzard, Ducks of various species, Black Tern, Bar-tailed (Barbled) Godwit, Bartram's Sandpiper, Yellowshanks, and many others. I shot a Killdeer Plover (*Agialitis vociferus*) about the second week in July, and took the eggs.

August 5th.—The close time for Ducks and Prairie Chickens has been extended to September 1st, but I went out on the 1st of August, and shot a few Killdeer and Upland Plover (Bartram's Sandpiper). I also shot three Sandpipers from a flock of about a dozen; they are very like a Dunlin, but the breast shows no signs of any black feathers, and I have shot similar specimens in June; they are also smaller than the Dunlin.

[They may have been Bonaparte's, or Baird's Sandpiper.—Ed.]

August 25th.—I had a day's shooting about the middle of the month, and bagged seventy head, including fifty-two Ducks. I have reared a tame Bittern, a fine handsome full-grown bird now; he seems very fond of frogs, small birds and insects; it takes me nearly all my time to supply him with food. On the 20th I heard that a Gyr Falcon had been observed; at the same time a friend of mine caught two young Canada Geese down by the river. You have no idea what a place this is for birds. I am often lying outside the tent, smoking, when perhaps a pair of Marsh Harriers will come sailing past; then a big Buzzard will perch about fifty yards away and remain motionless for hours, in spite of my firing my catapult at him; then a flight of Ducks passes over, or perhaps a few Sand-hill Cranes, or Geese, Passenger Pigeons, &c. This is an ordinary occurrence, and if I take the trouble to get my gun and walk down to a slough a quarter of a mile away, I am sure to flush Sandpipers, Plovers, Snipe, Yellowshanks, and other waders, a few Ducks, or perhaps a couple of Water Rails or a Bittern, and see the Musk Rats swimming and diving in all directions.

September 16th.—Three guns had good sport early in this month; they got 600 head in five days, mostly Duck, Snipe, and Prairie Chickens. Amongst the dead I found another species of Phalarope, smaller than those I got previously; it is in Autumn plumage. [Probably the Red-necked Phalarope.—Ed.] There were also several species of small waders, but I was too late to save them. Prairie Chickens are scarce this season, owing no doubt to the settlers shooting them during the close time. Amongst the birds I have got lately are Scaup, Grebes, Kingfishers, Blue Jay, Velvet Scoter, and Peregrine. Hawks are particularly abundant this Autumn, especially Marsh Harriers, but I rarely take the trouble to shoot at one now.

October 12th.—Winter is coming on fast, and the wild fowl are leaving us for the south. I have shot eighty Ducks in three days during the early part of this month. Snipe are still plentiful, but will soon be leaving. I have seen several Mergansers and Bull-heads, and secured one of the former for the collection. The other day I saw a Pelican (*Pelecanus trachyrhynchus*) exposed for sale in a shop; it was shot in South Manitoba, and measured eight feet from tip to tip of the wings. I have added to my store a Little Crane, which I shot out of a reed-bed early this month; it is the first of the kind I have ever seen here.

A Birds'-Nesting Ramble in Lapland.

BY ALFRED CRAWHALL CHAPMAN. (*The Ibis*.)

Continued from page 110.

June 16th. Coming down the Pulmakelf last night, I observed a thick-bodied Duck flying, its wings rustling in the air. I inquired of the Laps if any Ducks bred in trees about here, and a boy assured me they did, and that he knew of holes where he had seen their nests in previous years. I told him where I had seen this Duck, and this morning he returned, having found the nest and six eggs of the Goldeneye (*Clangula glaucion*). When we arrived at the place, I wondered where the nest could possibly be, so thin and small were all the trees; however, in an old stump about three feet high, with a hole in the side of it large enough for a Duck's body to enter, and about eighteen inches down, was a mass of dusky white down, with the six bluish-green eggs. No bird was about, and the eggs were cold, but quite fresh. The stump was at the top of a very steep bank, perhaps 150 feet from the river, but certainly not more than 40 feet perpendicularly above the water. When wandering in the Birch forests, we observed a Great Spotted Woodpecker (*Picus major*), and shortly after Trinus saw a Pine Grosbeak. I secured both, and then we commenced to look for the nests, which we were lucky in finding close together. It was merely a question of looking for a thick enough tree to find the Woodpecker's nest. The first thick-stemmed tree contained the nest, and I caught the hen bird on it; she had just hatched her four eggs, so I released her. The Grosbeak's nest, similar to the one already described, contained four eggs. Presently the male Grosbeak came up, a handsome scarlet-plumaged bird. I never heard these birds utter the slightest note; they seemed to seek safety by sitting perfectly motionless on an open branch, and allowed easy approach. The hen was a greyish-green bird.

A very pretty Willow Grouse, in adult Summer plumage, which I shot to-day in Russian Finland, had an egg ready for laying in her oviduct. A Siberian Titmouse (*Parus cinctus*), flying out of an old Woodpecker's hole, made me sure of a nest and eggs, and I secured her instantly, but was disappointed to find nothing but dry chips and no eggs at the bottom. The bird was a round fluffy ball of hairy feathers, with a rather long blue tail, and was the only example I saw of this species. Titlarks were very abundant, and the nests were everywhere to be found now. A large flock of Common Scoters rose as we came down the Pulmakelf to-night. To-day was dull, but

not cold, and in the evening we had sunshine, which afterwards proved to be the beginning of that continual radiance which characterizes the three months' Summer season in these latitudes.

June 17th. A Qvane girl brought in the dark-colored down and eight eggs of what she termed "Kriksa," *i. e.* Teal (*Querquedula crecca*), which she had taken that morning at the edge of a large lake a little way from Pulmak. She also brought me a peculiar open-topped nest, made of thin, stiff, black roots, lined with dead leaves, and containing six eggs of the Water Ouzel: doubtless *Cinclus melanogaster*. The nest was different from any of those of *C. aquaticus* I have found in England.

Later in the day, after a long and fruitless search, as Trinus and I were resting on the edge of a half-frozen lough far out on the fell, a pair of Wood Sandpipers came from somewhere and began to feed along the edge of the lough; and whilst watching them a Long-tailed Skua came past us with very rapid flight. I must have been indulging in a quiet "siesta," when Trinus touched my coat and pointed to the lough, on which, almost within gunshot, two large heavy-looking Ducks were swimming, their necks craned up, suspiciously watching us. They had just alighted, and although we were fully exposed to view, they did not seem to understand what we were, so motionless did we lie. Presently the lighter colored of the two began diving, the other swimming restlessly backwards and forwards along the edge of the ice. Immediately I moved, the cat-ice cracked under my feet, and the drake took a long flight; but coming high over my head, I killed him, and the duck, rising at the shot, shared a similar fate. They proved to be an adult pair of Velvet Scoters (*Eidemia fusca*). These birds were evidently seeking a nesting place when I found them; but so arctic was the state of the fells and their lakes at this date, that I do not think either the Velvet Scoter or the Long-tailed Skua had eggs when I left the country in the beginning of July.

A pair of Whimbrels (*Numenius phaeopus*) showed great anxiety long before we reached their real breeding place; and although they used every endeavor to allure us away, I was most fortunate in walking right upon the nest and four eggs, slightly incubated, in a hole scratched in the reindeer moss. Many pike were disporting themselves in some shallow lakes far out on the fells to-day, often jumping right out of the water. I shot one to see what it was, and it proved to be about two pounds weight. We wondered greatly how these fish had ever got there, and what they did in the long Winter! Coming home that night

I flushed a brace of Wigeon off the small piece of water near our house, where I had killed the mature drake before; the unfortunate duck lost her husband again, and I found he was half moulted to Summer plumage.

June 18th. We found our first nest of the Blue-throated Warbler (*Cyanecula suecica*) to-day, with seven fresh eggs. It was placed on a dry bank of moss, much concealed, and was constructed entirely of fine dry grass, with a thick foundation of moss. The female, which was very tame, had a white throat, with a little blue at the edges and a touch of red and blue on the breast. All the male Bluethroats which I saw had the red spot on the throat. A Brambling's nest contained seven fresh eggs to-day; and a Raven which I shot was in full moult in all the wing feathers, except the quills, which had been renewed, and the feathers on the neck and head, which were also new.

Coming along the edge of the Tana I found a nest and four eggs of the Shore Lark (*Otocorys alpestris*). The nest was within ten yards of the river side, placed in a hole scratched in the sandy ground near the bank. It was close in to Pulmak, and I must have passed the place dozens of times before, but even now I did not see the bird. Two Laps, Trinus, and I were standing wondering where the owner of the nest could be, when we suddenly caught sight of her, squatting on the ground at our very feet, her head turned towards us and her little black horns distinctly visible. The nest was made exclusively of dry white broad-bladed grasses. The eggs were of a yellowish color, not unlike those of our Yellow Wagtail. It is strange that this bird should nest in such very different localities, for I afterwards found them, evidently breeding, on the bare fell-tops overgrown with stunted lichens and mosses, and strewn with boulders and patches of snow. A Lap brought me in to-night five eggs of what he called the "Hanga," *i. e.* Long-tailed Duck (*Harelda glacialis*). The nest was placed on the river bank just opposite Pulmak, and as there was no down, I concluded she could not have laid her full complement off eggs. Reed Buntings seemed common by the side of some fell lakes which we visited to-day. Although we now had fine Summer weather, there was not a sign of greenness in a single tree or plant as yet, and many deep ridges of snow looked as if they were never going to melt. A single Swallow arrived at Pulmak in the evening.

June 19th. House Martins (*Chelidon urbica*) arrived and sought the caves of our dwelling for a breeding place. After breakfast I shot the

female Wigeon as she rose from her nest close to the house; the one egg was laid on the dead leaves under a Willow bush, with scarcely a sign of a nest. This was the Duck whose two husbands I had already secured, and now she fell herself! She had a pretty brindled head, grey and black, the wing and tail coverts mottled white all over, the flanks were brown.

June 20th. A little Lap boy brought me this morning, in a tin tray, the nest, cut out of the ground, containing three eggs, of the Dotterel (*Eudromius morinellus*), the first indication I had of this bird's presence near Pulmak. To-day Trinus and I packed up our tent and hired two Lap boys to "pole" us up the Pulmakelf as far as Pulmak Vand, a lake some seven miles long and two miles wide, about eight miles from Pulmak and about forty miles north of the great Lake Enare. We had intended pitching our tent near a Russian Finn's hut at the south end of the lake, but we were rather amazed to find, on emerging from the high banks of the Pulmak river, that the whole surface of the lake was still frozen, and that the mountains on the Russian side were deep in snow. We accordingly pitched our tent in the Birch forest near the frozen lake, and when the two Laps had roasted us some salmon steaks with the aid of a birch fire, they returned to Pulmak, and we were left alone in the solitudes of the forest. Close to our home was the boundary line between Norwegian Lapland and Russian Finland; this line is kept distinct through the Birch forests by means of cutting down all the trees for a width of several yards, and over the bare fells by large cairns of stones set on the tops of conspicuous fell summits.

When strolling along a pathway in the forest in the afternoon, we met the Russian Finn's daughter, who had just flushed a Willow Grouse (*Lagopus albus*) from its nest and eleven richly colored eggs, laid on the dead Birch leaves at the foot of an old stump. I bought these from her; but she thought they were worth at least a krone for eating. Coming back to our tent that night I disturbed a Blue-throated Warbler from her nest under a Juniper bush, containing five fresh eggs. As we lay in the tent we made notes of the nocturnal bird-songs. About 11 p. m. the woods resounded with the hoarse cackle of the Willow Grouse. I learnt that they were in the habit of flying down to the forest streams to drink at this hour, and certainly from 11 o'clock till midnight they were very restless and noisy. For about half an hour at midnight, though the sun shone brilliantly in a yellow sky, all was hushed, and the first bird to break the silence was the Red-

wing, followed immediately by the Brambling, and then the smaller Warblers joined the chorus. It is strange how short a time they seem to allow themselves for rest. In the morning, the Russian Finn, having heard from his daughter that some eccentric individuals were camping out in the woods by the lake, came and informed me that he had seen the prints of seven bears in the snow two days before, and wanted us to go after them; but the distance was great, and the chance small, so we declined.

June 31st. On the fells to-day Golden Plovers and Whimbrels were numerous. I took a nest of the former with four fresh eggs, and shot one of the latter as he perched on the topmost branch of a Birch tree. When lurching we heard a peculiar *chit-chit* note in some scrub near us, and on going to see what it was, a Common Snipe (*Gallinago caelestis*) rose, the only example of this species I observed in Finmark, or Finland, for we were now on Russian territory. A pair of Long-tailed Skuas seemed to be wandering over the fells in search of a place to breed, and I secured a splendid specimen as he came, like an arrow, right at me. The inside of its mouth was pale pink, the irides hazel, the tarsus was a pale blue, and the feet dusky black. We got our third nest of the Bluethroat to-day, with six eggs.

June 22nd. Two important observations were made to-day: first, there is a slight tinge of green in the Birch forests, which, up to now, have been as bare and barren as Winter; and, secondly, the appearance of mosquitoes in force. From this date life became hardly tolerable on account of this plague. I found this morning by the lake-side a nest and six eggs of the Reed Bunting, and shortly afterwards I flushed a Phalarope (*Phalaropus hyperboreus*) from her tiny nest in the grass, close to the water's edge. The legs and feet of this bird are greenish. A pair of Wood Sandpipers evidently had a nest here, but they completely deluded us. This bird has a habit of going high up in the air and gyrating for hours in wide circles, at times shooting up another fifty or sixty feet with a delightful wild cry.

Coming down the Pulmakelf, on our return to Pulmak, we found two nests of Temminck's Stints, one containing two eggs, the other three. The latter was placed close to a Lap's log hut, and immediately behind a dunghill adjoining the house, a few paces from the edge of the Tana. The old birds were very solicitous, sailing around with their wings set over their backs, like a butterfly, often alighting on a tree, rail, or stone, or sometimes on the ridge of the Lap hut adjoining, uttering the while a continual pretty trilling note.

I frequently observed this tiny Wader in the act of nest making, scratching a hole with its little feet, then quickly sitting down and turning its little body round to form the required depression. Then the bird jumps up, and looking at the embryo nest, pushes a dead birch leaf with her slender beak into the tiny hole. I measured the diameter of one nest containing four eggs, and it did not amount to $2\frac{1}{4}$ inches over all. The eggs are placed small ends together, and, owing to the depth of the nest, are caused to stand nearly on end, thus taking up very little space; indeed, if they lay on their sides, the small body of this Wader could not cover them. Frequently, when at the nest, the Stints would run round and round, almost coming within arm's reach; but their quickness of flight when surprised or frightened is astonishing. They seemed to have a special liking for the dry sandy banks of the Pulmakelf close to its junction with the Tana. Here the sloping sand was sparsely overgrown with dwarf Willows, and amongst the roots of the Willows a coarse grass was growing, strewn with dead Birch leaves, and this the Stints seemed to prefer to any other place, although I found them breeding several hundred yards from water.

June 13rd. A pair of Ring Plovers (*Agriolitis haticula*), by their excessive anxiety and solicitude, betrayed their nest and four eggs within a stone's throw of our dwelling. I had heard them nearly all night long uttering their fine hollow cry, as they flew up and down the river. I got my last Pine Grosbeak's nest to-day, with two eggs. A Great Grey Shrike's nest, built close to the place where we had obtained a nest and seven hard-set eggs on the 14th of June, now contained six fine fresh eggs, evidently a second laying. This nest was constructed almost entirely of white "ryper"-feathers, and was very warm and compact. It was placed in a Birch tree standing alone in an open glade in the forest. The white feathers of the Willow Grouse exactly resembled in color the silvery bark of the Birch tree on which it was built. We also obtained to-day a Brambling's nest with seven eggs, a Bluethroat's with seven eggs, and a Golden Plover's with four eggs, and I shot a Grey-headed Wagtail in gorgeous plumage. The heat was great to-day: the Birch forests are turning green, and the mosquitoes are a living plague.

June 24th. On our way to some distant fells to look for Dotterel, we found a Ring Plover's nest with two eggs and two Mealy Redpole's nests, the first with five eggs, the second with newly hatched young. The latter have a very extended period of incubation, and probably have

two broods in the season. Their nests are very pretty, consisting in this case of small twigs outside, then the soft downy wool of the willow-catkin, and then the snow-white lining of "ryper"-feathers. When the pale-blue eggs, with their purple spots, are laid in this, it is impossible to conceive a prettier sight. After a long climb we eventually reached the summit of a truly characteristic Lapland fjeld; nothing but a great rolling waste of reindeer-moss, thickly strewn with grey boulders and stones and occasional patches of snow. It seemed to be a real paradise for the wild and solitary Dotterel. On looking over a ridge, we saw a grey-looking bird get up and quickly disappear behind a knoll. On going to the place, there lay the "triple clutch" characteristic of the Dotterel, laid in a slight hole scratched in the reindeer-moss, without any lining. Leaving Trinus at the nest, I went after the bird, which kept running in front of me, and eventually rose, uttering a deep *croak-croak*, which I never heard afterwards. After a considerable chase I procured her, and returned to the nest. The eggs were hard sat. During the course of to-day I saw many Dotterel. Once, when lying resting, I heard a low pipe, and on looking round saw the fine chestnut breast and white eye-streak of a Dotterel, which was sitting on a stone close to us. We did not move, and presently two others came running up. Golden Plovers swarmed, and the notes of the two could be well compared; that of the Dotterel is similar to, but not nearly so loud as, that of the Golden Plover. Once I watched a Dotterel running about, till at length it sat down, and I felt sure it was on the nest. Approaching quietly, I got within six feet of her, when I perceived that the bird had gone to roost; her eyes were shut and she was fast asleep: it was a very pretty sight. On looking at my watch I found it was midnight.

Seated on the top of a high fell, some twelve miles from Pulmak, the view was superb. Far as the eye could reach this wild country presented a continuous series of rolling hills, clad with Birch to a certain level, the intervening morasses being studded with numerous lakes and water-courses, and in the hazy distance great snow-mountains reared up into the yellow midnight sky. The sun shone brilliantly, and, with the exception of the occasional low pipe of the Plover and Dotterel, or the lively chirrup of the Snow Bunting, all was silent. Frequently, during the course of the day, we observed small parties of six or eight Dotterel running about together; but they were wild and unapproachable, and I felt inclined to think that they could

not be breeding. Some of the Dotterels which we examined were far blacker on the crown of the head than others; some had a grey crown, but, with this exception, I could note no difference in the plumage of the sexes; the legs and feet are yellow; the irides hazel. As we tramped home we remarked that the Birch leaves were now nearly full out; only three days ago not a sign of a leaf was visible!

June 25th. Temminck's Stints were just beginning to lay now, and to-day we got two nests with four fresh eggs each. I succeeded also in getting a nest and four very fine eggs of the Rough-legged Buzzard, considerably larger than any I had got before, and quite fresh. A Lap boy brought me a clutch of four fresh Whimbrel's eggs; they had a fine olive-green ground, with few other markings, entirely confined to the larger end. Rather contrary to our anticipations, a heavy thunderstorm, with vivid flashes of lightning and deluges of rain, overtook us to-day. The rain had a most invigorating effect on the Birch forests, and in the afternoon, when an almost tropical sun began to shine, the previously imperfect exfoliation of the buds was completely developed.

(To be concluded next month.)

Brief Notes.

A NEW BIRD FOR TEXAS.—In the O. and O. for January, 1885, p. 5, Mr. Charles H. Marsh describes a new species of Field Sparrow, (*Spizella wortheni*), from New Mexico. Mr. Ridgway has formally described the same, holding it to be a valid species.

Among the birds collected by Mr. Wm. Lloyd, at San Angela, Texas, is one which Mr. Ridgway pronounces to belong to this new species. So Worthen's Sparrow may be added to the list of Texas birds.—*W. W. Cooke.*

CURIOUS NESTING PLACE.—It was recently found necessary to repair the chimney of the Osborn Mill, at Fall River, Mass., which is 125 feet high. In removing the casting and loose bricks Mr. Crow, the contractor, found a Sparrow's nest, (*Passer domestica*), which contained one egg.—*Jos. M. Wade, Boston, Mass.*

Mr. Geo. H. Ragsdale, Gainsville, Texas, sends us a double nest, about which he writes as follows: "The two nests sent last week in the bunch of mistletoe I take to be those of the Orchard Oriole and Lark Finch, the latter built in and on the former, probably after the Orioles had vacated. The nests were placed in a Black Jack tree thirty feet high."—*Random Notes.*

Winter Birds of Raleigh, N. C.

Birds observed at Raleigh, N. C., by H. H. and C. S. Brimley in the months of December, January and February, 1881—1885.

- 1 Hermit Thrush, (*Hylocichla unalascae pallasi*), common all Winter. This bird does not arrive here till the Wood Thrushes have all gone south, and always leave us in the Spring, a few days before they arrive.
- 2 Robin, (*Merula migratoria*). Occasional in Winter. Generally gets plentiful towards the end of February.
- 3 Mockingbird, (*Mimus polyglottus*.) Fairly common. Much more abundant in Summer. Most of those that stay the Winter are young birds.
- 4 Brown Thrasher, (*Harporhynchus rufus*.) Generally a few seen in February.
- 5 Bluebird, (*Sialia sialis*.) common.
- 6 Gold-crowned Kinglet, (*Regulus satrapa*) and
- 7 Ruby-crowned Kinglet, (*Regulus calendula*.) are both quite common during the Winter.
- 8 Tufted Tit, (*Lophophanes bicolor*.) Fairly common. Found almost entirely in woods.
- 9 Carolina Tit, (*Parus carolinensis*.) Common everywhere.
- 10 White-bellied Nuthatch, (*Sitta carolinensis*.) Fairly common; generally seen singly.
- 11 Brown-headed Nuthatch, (*Sitta pusilla*.) Our commonest Nuthatch at all seasons. Generally several together.
- 12 Red-bellied Nuthatch, (*Sitta canadensis*.) Only seen in February, '85, on the 28th, and seen three times afterwards in March, two specimens being procured.
- 13 Brown Creeper, (*Certhia familiaris rufa*.) Quite common during the Winter months.
- 14 Carolina Wren, (*Thryothorus ludovicianus*.) Fairly common everywhere.
- 15 Winter Wren, (*Anorthura troglodytes hyemalis*.) Common on wooded creeks.
- 16 Pine-creeping Warbler, (*Dendroica pinus*.) Quite common.
- 17 Yellow-rump Warbler, (*Dendroica coronata*.) Generally fairly common in Winter.
- 18 Redpoll Warbler, (*Dendroica palmarum*.) One shot and another seen on Dec. 15, 1884.
- 19 White-rumped Shrike, (*Lanius ludovicianus excubitorides*.) Common from September to end of December; very rare after that.
- 20 Cedarbird, (*Ampelis cedrorum*.) Exceedingly irregular in its distribution at all times of the year, generally some seen in Winter.
- 21 Purple Finch, (*Carpodacus purpureus*.) Accidental.
- 22 Pine Finch, (*Chrysomitris pinus*.) Quite common from January 1st till end of April, 1885. Last seen May 9th. Never seen before this year.
- 24 Grass Finch, (*Poocetes gramineus*.) Common in fields.
- 25 White-throated Sparrow, (*Zonotrichia albicollis*.) Common all Winter; some stay till the middle of May.
- 26 English Sparrow, (*Passer domesticus*.) Common in the town of Raleigh, and gradually spreading into the country.
- 27 and 28 Chipping Sparrow, (*Spizella socialis*.) and Field Sparrow, (*Spizella pusilla*.) The bulk of both these species leave here in the Winter, but a few remain.
- 29 Swamp Sparrow, (*Melospiza palustris*.) Common.
- 30 Song Sparrow, (*Melospiza fasciata*.) Common.
- 31 Snowbird, (*Junco hyemalis*.) Very common.
- 32 Fox Sparrow, (*Passercella iliaca*.) Common; more especially in woods.
- 33 Cardinal, (*Cardinalis virginianus*.) Common in thickets.
- 34 Towhee, (*Pipilo erythrophthalmus*.) Generally a few seen in February.
- 35 Cowbird, Little Blackbird, (*Molothrus ater*.) Fairly common; males and females generally go in separate flocks.
- 36 Redwing Blackbird, (*Agelaius phoeniceus*.) Occasional in Winter; generally plentiful towards end of February.
- 37 Field Lark, (*Sturnella magna*.) Common all Winter.
- 38 Rusty Blackbird, (*Scotocophagus ferrugineus*.) One shot December 10, 1884.
- 39 Crow-blackbird, (*Quiscalus purpureus*.) One shot Dec. 23, 1884.
- 40 Blue Jay, (*Cyanocitta cristata*.) Fairly common.
- 41 Crow, (*Corvus frugivorus*.) Common.
- 42 Shore Lark, (*Eremophila alpestris*.) One flock was observed near Raleigh, in January, 1885.
- 43 Pewee, (*Sayornis fuscus*.) Common.
- 44 Kingfisher, (*Ceryle alcyon*.) Occasional in Winter.
- 45 Big Sapsucker, (*Picus villosus*.) Rare at all times.
- 46 Little Sapsucker, (*Picus pubescens*.) Common.
- 47 Red-bellied Woodpecker, (*Centurus carolinus*.) Rather rare.
- 48 Yellow-bellied Woodpecker, (*Sphyrapicus varius*.) Fairly common in Winter.
- 49 Pileated Woodpecker, (*Hylotomus pileatus*.) Rather rare, but most frequently seen in Winter.
- 50 Red-headed Woodpecker, (*Melanerpes erythrocephalus*.) Accidental in Winter.
- 51 Yellow-hammer, (*Colaptes auratus*.) Commonest of all our Woodpeckers in Winter.
- 52 Screech Owl, (*Scops asio*.) Fairly common.
- 53 Barred Owl, (*Strix nebulosa*.) Fairly common.
- 54 Great Horned Owl, (*Bubo virginianus*.) Rather rare.
- 55 Sparrow Hawk, (*Tinnunculus sparverius*.) Fairly common.
- 56 Marsh Hawk, (*Circus hudsonius*.) Common.
- 57 Sharp-shinned Hawk, (*Accipiter fuscus*.) Rather rare.
- 58 Red-tailed Hawk, (*Buteo borealis*.) Not common.
- 59 Red-shouldered Hawk, (*Buteo lineatus*.) Fairly common.
- 60 Turkey Buzzard, (*Cathartes aura*.) Common.
- 61 Carrion Crow, (*Catharista atrata*.) Common at times; more irregular in its distribution than the preceding.
- 62 Wild Pigeon, (*Ectopistes migratoria*.) Accidental; seen once or twice only.
- 63 Dove, (*Zenaidura carolinensis*.) Common.
- 64 Wild Turkey, (*Meleagris gallopavo americana*.) Occasional.
- 65 Killdeer, (*Oxyechus vociferus*.) Fairly common.
- 66 Woodcock, (*Philohela minor*.) Not very common. Sometimes fairly common towards the end of December.
- 67 Snipe, (*Gallinago wilsoni*.) Generally a few seen in December and January.
- 68 Great Blue Heron, (*Ardea herodias*.) Accidental.
- 69 Coot, (*Fulica americana*.) Taken once on Dec. 1st, 1882.
- 70 Mallard, (*Anas boscas*.) Fairly common.
- 71 Green-winged Teal, (*Querquedula carolinensis*.) Fairly common in the latter part of February.
- 72 Partridge or Quail, (*Ortyz virginiana*.) Common.

CORRESPONDENCE.

Mr. Jenness Richardson desires us to call attention to the fact that the Solitary Sandpiper Egg (misprinted Eggs) advertised by him in our July number, is the single one found by him in 1878, and mentioned in Baird, Brewer and Ridgway's "Water Birds of North America," Vol. I.

Received. H. R. Taylor; H. F. Kramp; E. Carleton Thurber.

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No. 9.

Mississippi Valley Migration.

SPRING OF 1883.

BY PROF. W. W. COOKE, MOORHEAD, MINN.

A large part of the notes contributed by the observers during the Spring migration of 1883 has never been published; and it seems best that some of them, at least the notes on the more common species, should be put on permanent record, that they may be compared with the rapidly accumulating material of the following years. During 1883 there were published in the O. and O. Vol. VIII. the notes contributed on the Robin, Ducks, Geese, Blackbirds, Purple Martin, Brown Thrush, Junco, all of the thirty-five species of Warblers, Olive-backed Thrush, Catbird, Ruby-crowned and Golden-crowned Kinglets, Brown Creeper, House Wren, Red-eyed Vireo, White-bellied Swallow, Scarlet Tanager and the Harris', White-crowned, White-throated and Tree Sparrows. It is now proposed to give some more of the notes, but in a different manner from that in which they were presented in 1883. Then I undertook to scrutinize the notes and eliminate those which did not seem correct; now I shall give them just as they were sent in by the observers, merely arranging them in the latitude of the stations. When a note has seemed to be certainly a mistake, I have put an interrogation point after it and for all notes in brackets I am responsible, but as to the correctness of the other notes I cannot certify, with the exception of course of those from Jefferson, Wis. The full list of the observers for 1883 was printed in the "Specimen Issue" for January 1884, a copy of which probably is in the hands of the readers of the O. and O., but for the benefit of the few who may not have it, a list of the stations furnishing the following notes is here given, with the latitude and name of the observer.

Waxahachie, Tex., latitude 32-23, Dr. S. W. Florer.
Canton, Miss., 32-43, T. S. Ward.
Oxford, Miss., 34-15, Prof. R. B. Fulton.
Duck River, Tenn., about 35-45, J. B. Cathey.
Fayetteville, Ark., 36-02, Prof. F. L. Harvey.
Anna, Ill., 37-30, C. W. Butler.

St. Louis, Mo., 38-40, O. Widmann.
Manhattan, Kans., 39-12, Prof. D. E. Lantz and Dr. C. P. Blachly.

Glasgow, Mo., 39-14, Prof. T. B. Smith.
Jacksonville, Ill., 39-43, J. E. Hoffman.
Liter, Ill., 39-40, Dr. S. Griffin.
Ellsworth, Ill., ——— D. Arrowsmith.
Griggsville, Ill., 39-43, T. W. Parker.
Osceola, Ill., 41-10, Dr. E. O. Boardman.
Grand View, Ia., 41-15, W. A. Lester.
Des Moines, Ia., 41-36, U. S. Grant.
Coralville, Ia., 41-40, Mrs. V. S. Williams.
Polo, Ill., 41-58, H. A. Kline.
Racine, Wis., 42-45, Dr. P. R. Hoy.
Jefferson, Wis., 43, W. W. Cooke.
Waukon, Ia., 43-15, E. M. Hancock.
Mitchell, Ia., 43-19, J. W. Lindley.
Hastings, Minn., 44-45, Rev. G. B. Pratt.
Pine Bend, Minn., 44-47, R. Linton.
Elk River, Minn., 45-25, V. Bailey.
Argusville, Dak., 46-53, S. M. Edwards.

WOOD THRUSH, (*Hylocichla mustelina*.) St. Louis, Mo. The first seen was on April 19, when two were found at old stands singing a few strains, when it began to rain. April 22, two were in full song. April 29, they were still quiet and scarce. May 1, they are exercising every morning now, and by the 16th had become conspicuous and diligent songsters. Manhattan, Kans., First, May 1; Liter, Ill. First April 5; Grand View, Ia., First, April 28, three seen; Jefferson, Wis., First one was seen on May 10, and by the 12th there had been a decided increase and many were heard and six or eight seen; the bulk of the birds has not yet arrived. May 17, marked the height of the migration, and by the 21st, they had settled down to Summer numbers. Mitchell, Ia., First, May 9; Hastings, Minn., First, May 6, three singing.

BLUEBIRD, (*Sialia sialis*.) Duck River, Tenn., resident, an average of sixty-three per mile on March 5; Anna, Ill. Winter resident, is sometimes absent for a week or so but is likely to be met with any week during the Winter and in far greater numbers than in the Summer months. When the ground is soft, large numbers of them may be found in meadows, picking around the roots of grass as if searching for hidden insects;

occasionally eat Sumac berries. By April 16, all migrants have passed on, St. Louis, Mo. In January these were first seen, but only single birds; no flocks. February 13. Birds are mating, and up to the 24th were a great many arrivals; about half the birds seem to be back, being in pairs or pairing. March 4. The Bluebirds were the chief birds of the past week. They were seen and heard everywhere; the males doing most of the warbling; the females most of the fighting. I caught two females in my hands which had come down to the ground in combat. Manhattan, Kans. Winter resident, unusually abundant. On December 30th, about 125 were seen; then never more than twenty-five until March 12th, when seventy-five were seen. March 25th, they were abundant in pairs. April 7th, only twelve seen in a five mile tramp. Glasgow, Mo. First, February 7th. Jacksonville, Ill. First, February 28th, and for next three days were very plenty, but April 4th they almost disappeared; some were then pairing and others in pairs. They came back again April 8th and 9th, when some of them began investigating the boxes I have in my yard. Liter, Ill. First, February 17th, both male and female; bulk March 1st. Ellsworth, Ill. First, February 28th. Griggsville, Ill. First, with song, February 21st; on February 28th are more numerous and show signs of pairing. Osceola, Ill. First, February 28th. On April 1st, only six seen in four miles. April 15th, building. Grand View, Ia. First, March 1st, mating on March 13th. Des Moines, Ia. First, March 1st. Coralville, Ia. First, March 1st, a single male, but singing merrily. March 14th, half a dozen pairs seen; one took possession of bird house and went to housekeeping in earnest. Racine, Wis. First, March 15th. Jefferson, Wis. On March 11th, four were seen for the first time; slowly increased from that date on. Some were paired when they arrived, the rest mated as soon as they came. March 17th. They began to be quite common, but the cold put a stop to all migration until the 23d, after which they have been quite numerous. April 9th. They are now to be seen and heard everywhere in pairs, there being no flocks at all. I have not seen more than four birds together any time this Spring. Waukon, Ia. First, March 20th. Very few during the first week in April. Mitchell, Ia. First, March 12th, with snow two feet on a level. Bulk came March 25th, when five pairs were seen. Hastings, Minn. First, March 14th. Pine Bend, Minn. First, April 1st. Elk River, Minn. A pair came back April 5th, and are singing on an old nest.

PURPLE FINCH, (*Carpodacus purpureus*). Wax-

ahachie, Tex. Last one, April 10th [?]. Canton, Miss. Seen April 26th [?]. Fayetteville, Ark. First seen March 20th. Anna, Ill. Saw two April 16th. St. Louis, Mo. From January 24th to February 14th, very numerous. February 24th. Have been very scarce, only two seen. March 2d. Two at an old stand, (one in brown) singing. March 11th. Almost all gone, but on the 13th there were several new arrivals in three places. On March 16th, I found them in small parties in five places, and all singing beautifully, something like the Warbling Vireo, and on the 17th they were still numerous and in song. April 3d to 7th, the height of the season, but on the 8th the bulk departed. April 17th. Still present, but silent, on high trees and in plain dress. On April 18th; I saw four small parties in song, and the last one was seen on April 25th. Jacksonville, Ill. One in plain plumage was seen February 15th. Liter, Ill. First, both male and female, February 10th. On April 8th, one male and four females. Jefferson, Wis. On April 1st, first saw one male in fine plumage. Singing, but not in full melody. On April 4th I saw the first flock—three males and two females. April 11th. Saw two males and one female; no more until April 28th, when five males and two females were seen. May 2d. A flock of twenty was met; two males in the height of their wedding attire; six or eight much duller, and the rest with no "purple." May 6th. Bulk departed and last one seen. Hastings, Minn. First, April 11th. There are many around this season, in flocks of twenty or more. Elk River, Minn. First, April 12th, a large flock feeding on Poplar buds.

CHIPPING SPARROW, (*Spizella domestica*). Anna, Ill. Resident; have noticed perhaps twenty during the Winter. April 11th, numerous: April 22d, two nests, each with three eggs. St. Louis, Mo. First seen on April 4th. Bulk of the species here on April 9th, and by the 15th they had commenced building. Manhattan, Kans. First, March 31st. Two or three seen April 14th in a five mile walk. April 29th. Are here in full Summer numbers. Liter, Ill. First, April 3d. Griggsville, Ill. First, April 17th. Coralville, Ia. First, April 21st. Polo, Ill. First, [?] May 6th, and on May 10th abundant. Racine, Wis. First, April 10th. Jefferson, Wis. On April 11th, first saw six males. April 12th a few more came. Transients left about April 16th, but another wave came on May 3d, which made them again numerous. Waukon, Ia. First, April 9th. Hastings, Minn. First, April 17th.

FOX SPARROW, (*Passerella iliaca*). Waxahachie, Tex. Last seen April 24th [?]. Canton, Miss. Seen April 26th [?]. Anna, Ill. Winter visitant;

saw from one to ten per day. St. Louis, Mo. First saw two on February 20th, and on March 11th a few additional individuals. March 14th. Found three at one place and several at another, all singing. On April 3d was the height of the season. April 5th the bulk departed and the last one was seen April 7th. Manhattan, Kans. First, April 1st. On April 7th, one seen. Lites, Ill. First seen February 10th, both male and female; during the cold snap in March were quite numerous. Osceola, Ill. Came April 5th and stayed about a week. Grand View, Ia. First, April 6th; last, April 13th. Jefferson, Wis. First saw twenty-four individuals at two places on April 4th, at which time possibly the bulk of the species was here. Last seen on April 11th. Waukon, Ia. First, April 8th, two seen. Elk River, Minn. First, April 12th, and very numerous.

TOWHEE BUNTING, (*Pipilo erythrophthalmus*). Fayetteville, Ark. Usually a transient, but is a Winter visitant in mild Winters. It remained here as late as January of this Winter. Anna, Ill. Resident; common throughout the year. Saw from five to twenty almost every day that I was in a suitable locality. St. Louis, Mo. Three birds seen on December 30th, and they stayed through January and February, both male and female. On March 14th calls were heard in three places, and on March 16th saw only four males. The bulk of the species were here on April 5th, and the height of the season was from April 9th to 15th, and longer. On April 15th they commenced building. Manhattan, Kans. Abundant during Fall migration, and were seen at intervals during December, January and February, even in very cold weather. March 13th, common. March 25th, males abundant, but few females. March 31st, twelve males in a five mile walk. April 7th, twenty seen over same ground. April 14th, heard many. April 29th, in full numbers. Glasgow, Mo. Two seen March 24th. Jacksonville, Ill. First, April 7th. Griggsville, Ill. First, [?] May 2d. Osceola, Ill. First, April 8th. Grand View, Ia. First, [?] April 28th. Des Moines, Ia. First, April 3d. Coralville, Ia. First, April 14th. Polo, Ill. First, April 3d. Jefferson, Wis. First saw three males on April 21st, and on the 25th several males were heard. By May 3d, not more than twenty seen so far this Spring, and no females. May 10th a few males arrived, and by the 12th it was almost at the height of the season. May 17th: Bulk of the females arrived, and the height of the species. On May 19th, the height was past, and they are now building. Waukon, Ia. First, April 14th. Mitchell, Ia. First, April 13th. Pine Bend,

Minn. First, [?] May 20th. Elk River, Minn. First, April 27th.

ROSE-BREADED GROSBEAK, (*Zamelodia ludoviciana*). Canton, Miss. Came last Fall on November 5th, and on its return journey is still here, April 26th. St. Louis, Mo. On April 22d, first saw two males in song at old stands. The bulk of the species was here from April 25th to 29th, on the last of which dates they were the most conspicuous and noisy birds. The females have arrived, and old males are back in full numbers. Manhattan, Kans. First seen May 12th, being the first that I have ever known of at this place. Jacksonville, Ill. First, April 25th. Grand View, Ia. First, May 5th. Coralville, Ia. First, May 8th. Jefferson, Wis. First seen May 6th, four, all males May 7th, about one-tenth are here, and on May 8th they were somewhat more numerous. May 10th. Females arrived, but only a few. May 12th. About the height of the season for males, and the 17th was the height for females. May 19th. About in full numbers and most of them mated. Waukon, Ia. First, May 13th, three seen. Mitchell, Ia. First, May 2d. By May 10th no females had been seen. Hastings, Minn. First, May 5th. Pine Bend, Minn. First, May 13th. Elk River, Minn. May 3d was the first seen. [Notice what a very irregular record this is. The birds seem to have advanced along the Mississippi River faster than they did on either side.]

INDIGO BUNTING, (*Passerina cyanea*). Anna, Ill. First one, April 12th. St. Louis, Mo. First saw a flock of about eight males on April 21st. This species and the Black-throated Bunting were together in company with White-crowns, feeding on ploughed ground, alongside a hedge which borders a pond. May 1st. Are scarce, but have met with singing males once or twice each day. May 2d. Bulk of the species; first females, and many males in song. May 3d, wandering troops. Manhattan, Kans. First, May 5th. Griggsville, Ill. First, May 24th. Grand View, Ia. First, May 19th. Jefferson, Wis. First saw one male on May 17th, and again on the 19th several were seen, but no females. May 29th, First female. Hastings, Minn. First, May 24th. Pine Bend, Minn. First, May 13th. Elk River, Minn. First, May 19th.

MEADOW LARK, (*Sturnella magna*). Fayetteville, Ark. Common all Winter in the prairies; most of them left during the first ten days of March. By March 21st very few were left. Anna, Ill. Resident; met them in flocks of from ten to a hundred all Winter. St. Louis, Mo. First seen on March 3d, when they were quite numerous and noisy in Illinois, opposite the city,

but only once met with on this side of the river. By March 11th they were slowly taking up old stands, and on the 14th their song was heard on all sides; unusually numerous this year. Manhattan, Kans. First, February 10th. A few seen off and on until the first week in April. On April 14th, abundant. Glasgow, Mo. First, March 2d. Jacksonville, Ill. First, March 1st. Liter, Ill. The 20th of January, with a temperature of fifteen degrees below zero, both male and female were seen. The bulk of males and females arrived February 16th, in full song. Ellsworth, Ill. First, February 28th. Griggsville, Ill. First, March 12th, three seen. Osceola, Ill. First, March 19th. Grand View, Ia. First, March 17th. Coralville, Ia. First, March 18th. Polo, Ill. First, March 27th. Racine, Wis. First, March 15th. Jefferson, Wis. On March 23d, first saw fifteen to twenty single males; no females until April 1st, and no flocks at any time. All that were here on April 9th were mated. Waukon, Ia. First, April 4th, again on April 6th, four seen. Mitchell, Ia. First seen were two males on March 20th. Hastings, Minn. First, April 6th, four seen. Pine Bend, Minn. Mating on April 21st. Elk River, Minn. The first seen this year was a single female on April 5th.

ORCHARD ORIOLE, (*Icterus spurius*). Anna, Ill. First, April 20th; one seen. St. Louis, Mo. On April 18th, first saw one male, which was very dark, and on the 19th another one, singing. April 21st. First male of last year, and on the 22d there was a slight increase. April 29th it became quite prominent; the first female and a few males of last year have arrived, but the species is not yet at its height. May 3d. Bulk of the species and in wandering troops. Manhattan, Kans. First, April 21st. Liter, Ill. First, May 2d. Griggsville, Ill. First, May 16th. Grand View, Ia. First, May 5th. Polo, Ill. First, May 9th. Mitchell, Ia. First, May 8th; by May 10th no females had yet been seen. Elk River, Minn. First, May 18th.

BALTIMORE ORIOLE, (*Icterus galbula*). Oxford, Miss. First, April 15th. Anna, Ill. First, April 18th; one heard. St. Louis, Mo. On April 19th, first saw two, which were shy and almost silent. April 20th, two more, and on the 22d a slight increase. April 29th, bulk of the species, and they are now the most conspicuous and noisy birds. The females have arrived and the old males are back in full numbers. Manhattan, Kans. First, April 18th. Glasgow, Mo. April 23d, was the first seen. Jacksonville, Ill. One seen April 27th; nesting on May 7th. Liter, Ill. First, May 2d. Grand View, Ia. First, May 5th. Des Moines,

Ia. First, May 4th. Coralville, Ia. First, May 2d. Polo, Ill; First, May 8th. Racine, Wis. First May 6th. Jefferson, Wis. First seen on May 6th, and the next day about one tenth were here. May 8th, somewhat more common. On the 10th the females arrived, but only a few, and the 12th was the height of the season for males, but not yet bulk of the females. May 19th, the height of the season is past, but yet no signs of building. Waukon, Ia. First, May 7th. Pine Bend, Minn. First, May 13th. Elk River, Minn. First, May 14th; first female, May 19th.

PURPLE GRACKLE, (*Quiscalus purpurcus aeneus*). Fayetteville, Ark. In large flocks on March 30th and 31st. Anna, Ill. Resident in flocks varying from fifty to a thousand; arrived from the south February 20th to 28th, and on April 8th are still passing through in flocks. St. Louis, Mo. Saw four on January 18th, and two more on the 29th. On March 14th, the first of the Summer sojourners came; a very few were among the other Blackbirds in the lowlands on the Illinois side of the river. March 16th. First seen in Missouri. On April 15th they were mating, but still going to the common roosting place. April 22d. At this date they were carrying building material. Manhattan, Kans. First, March 27th. About two hundred were seen April 7th, in a five mile walk, and the same April 14th. By the 29th they were in full numbers. Jacksonville, Ill. First, March 1st, twenty in one flock. April 9th, numerous. Osceola, Ill. First, February 27th; a hundred on March 1st. Grand View, Ia. Some wintered contrary to their usual custom. [The Winter before some stayed in Southern Minnesota]. Coralville, Ia. On May 5th, a nest with one egg. Polo, Ill. First, April 8th. Racine, Wis. First, March 25th. Jefferson, Wis. First saw one on March 25th. March 31st. Seen several times this Spring; ten birds in all. In afternoon of April 4th I saw the first flock, numbering eleven, and later another flock migrating. On April 9th they began building in my yard. April 21st. Two small flocks were seen, not yet mated. Waukon, Ia. First, April 6th; one seen. Hastings, Minn. First, April 1st. Elk River, Minn. First, April 12th; one seen. Argusville, Dak. First, April 6th; none seen from then until April 29th.

KINGBIRD, (*Tyrannus carolinensis*). Waxahachie, Tex. April 25th, not yet come. Canton, Miss. Seen December 1, 1882; first for this Spring March 10th, probably resident. Anna, Ill. First, April 17th; two seen. St. Louis, Mo. First saw a silent one on April 18th—a beautiful bird—and on April 20th a second one was seen. April 29th. Begins to be conspicuous, and by May 1st it was

increasing slowly. Manhattan, Kan. First, April 22d; by the 28th in full numbers. Liter, Ill. First, April 28th. Griggsville, Ill. First, April 24th. Osceola, Ill, First, April 10th. Grand View, Ia. First, April 26th. Des Moines, Ia. First, May 5th. Coralville, Ia. First May 4th. Jefferson, Wis. On May 6th first saw only one and on the 7th three more, but silent. May 10th. Bulk of the species and almost the height of the season—a great increase. May 12th. Height of the season. By the 19th the height had passed. Waukon, Ia. First, May 16. Mitchell, Ia. First April 28th. (?) Hastings, Minn. First, May 7th; one seen. Argusville, Dak. First, May 25th.

The Oregon Snowbird.

(*Junco oregonus*.)

BY A. W. ANTHONY.

In northwestern Oregon one of our most common birds, Winter and Summer, is the Oregon Junco. In Winter little clattering flocks are about the door-yard at all hours of the day, and in Spring and early Summer the males may be seen perched on fence post or house-top chanting their simple song until one almost tires of it. Although the bird is nearly or quite as common with us in the Winter as at the breeding season, it is nevertheless migratory to a greater or less extent throughout its range in this region, our Summer birds leaving only as the Winter residents arrive, so that the change is hardly noticeable. The same individuals return to the same locality to breed, I think, as an Albino was noted for two consecutive seasons from exactly the same place. The second season the bird was shot and upon inquiry I found that the farmers had seen the bird for at least two years before it came under my notice. They also told me that it had always nested in the same place—a dry bank covered by a few low bushes. A great variety of places are chosen in the location of the nest—the favorite place being under some low overhanging bush, and is invariably built in a hollow with the top of the nest just flush with the surface of the ground. I have occasionally found nests in holes dug among the roots of bushes or small trees. Whether these holes were dug by the birds themselves I can not say—they were usually about four inches deep—dug horizontally or with but a slight incline. Two parallel roots were generally taken for the doorway, and just behind them in a spacious cavity the nest was built. The opening was about one and three-quarters or two inches in diameter. Nests found in such locations do not seem to differ in

material or form from those sunk in the ground. A good many nests were found under piles of cord wood, three being found under one pile. A few were found in a railroad cut built on a shelf in the steep bank and screened by a thick curtain of vines, and one was found built in the vines themselves, one side only just touching the bank. They raise three and sometimes four broods during the season, the first nest being built about the last of March or the first week in April. The composition of the nests taken by the writer varied but very little if any—dry grass rather loosely put together with a lining of cow hair. The eggs are usually four—rarely five—white, sprinkled with fine reddish and brown spots chiefly on the larger end. The marking varies greatly, in some being almost entirely absent, and in others so thick as to almost hide the ground color. Size about 0.80x0.60. Nests of this Junco are often destroyed by snakes, which are very plentiful in some parts of Oregon. Several times I have returned for a nest found a few hours previously, and found a very contented looking snake coiled up in the remains of the empty nest, and a pair of very angry Juncos hopping about in the bushes overhead and venting their rage in short, angry, snapping notes.

A Catalogue of the Birds of Kalamazoo County, Mich.

BY DR. MORRIS GIBBS.—PART VII.

118. [312.] *Myiarchus cineritus* (Linn.) Cab. Great-crested Flycatcher. A common Summer resident. Peculiar in its family as the only representative which builds its nest in excavations and natural hollows in trees and stumps. Arrives about May 1st, sometimes later, and rarely as early as April 23d. Cannot say when it leaves us.

119. [315.] *Sayornis fuscus* (Gmel.) Baird. Phoebe Bird; Pewee. An agreeable, cheerful bird. The first to arrive of the family. Reaches us the first warm spell in March, as early as the 16th one season. Nests abundantly in barns, sheds, in hollow trees in woods and on the under side of the roots of overturned trees in wild places far from the habitations of man, a peculiarity now, which was once undoubtedly a regular habit with birds of early times before the county was settled. Depart for the South in October, remaining until November in pleasant Autumns.

120. [318.] *Contopus borealis* (Swain.) Baird. Olive-sided Flycatcher. Have only once observed this species in the county, which occurred May 22, 1885. Although not rare to the north

of us in Summer they are rare here owing to the line of migration passing to one side of us.

121. [320.] *Contopus virens* (Linn.) Cabanis. Wood Pewee. A common species from May 20th to Sept. 15th. Arrive usually about May 10th or 12th. My earliest record is May 6th, while it does not appear until the middle of the month some seasons. A very common species, well known from its pleasing habits and sad but sweet notes, truly more of a song than the notes of some of the Oscines.

122. [322.] *Empidonax flaviventris* Baird. Yellow-bellied Flycatcher. Only recorded in the county by Mr. F. H. Chapin. A scarce migrant.

123. [324.] *Empidonax acadicus* (Gmel.) Brd. Acadian Flycatcher. An abundant Summer resident. Arrives late like the Wood Pewee. A bird little known to the common stroller of the woods. Nests in the deep solitudes of the heavy timbered forests. Rarely seen after August 1st.

124. [325a.] *Empidonax pusillus* Trailli (Aud.) Traill's Flycatcher. A species which is more abundant than is generally supposed, but from its retiring habits little known. I have never taken the eggs although perhaps a dozen sets have been secured during the last twenty years. The species prefers low sections of country, where small streams meander through Willow and Alder copses. Reaches us about the middle of May. Know but little of its habits and cannot say when it leaves us.

125. [326.] *Empidonax minimus* Baird. Least Flycatcher. An abundant Summer resident. Frequents edges of dense woods and light groves generally. More often prefers the borders of Beech and Maple woods, but also quite common in some patches of White-oak woods. Arrives from April 25th to May 5th. Leaves us September.

126. [335.] *Trochilus colubris* Linn. Ruby-throated Hummingbird. An abundant species from May 15th to September 10th. Generally arrives about May 10th; occasionally by the 6th. Never appears in April in my experience. Remains as late as October 1st some seasons, but usually all have departed by Sept. 25th. A pleasing gem known to all and ever admired. Quite tame and unsuspecting, and I have frequently caught specimens in my insect net. The nests are very rarely found, and almost always by merest accident.

127. [351.] *Chatura pelusgica* (Linn.) Baird. Chimney Swift. An abundant species five months of the year. Usually arrives about April 25th; occasionally as early as the 16th of the month, and sometimes not until May 3d. Depart in late

September or early October, but occasionally a few specimens may be seen wheeling about late in October, after quite severe weather. This bird offers a strong point in the voluntary adoption of certain species of quarters differing from those formerly occupied. I doubt if there is a species with us which is more thoroughly inclined to build its nest in favorable situations afforded by the habitations of man. This species and the Barn Swallow are the best representatives of that class of birds which have modified themselves to the surroundings afforded by civilization. The Swift is gregarious in its tastes, although often building in isolated pairs, and is one of our most interesting and peculiar birds.

128. [354.] *Caprimulgus vociferus* Wils. Whip-poor-will. An abundant species during May, June, July, August and September. Arrives from April 20th to May 1st. Usually appears about April 28th. The last do not leave us until October 10th, or later. Have frequently heard them singing as late as September 20th. Nests abundantly in woods, usually selecting dry sections.

129. [357.] *Chordeiles popetue* (Vicill.) Bd. Nighthawk. Arrives early in May. Departs in October. Nests abundantly in sparsely wooded lands and stony pasture lots. The Nighthawk, Whip-poor-will and Swift are our most beneficial species and should be protected rigorously.

130. [360.] *Picus villosus* Linn. Hairy Woodpecker. An abundant resident nine months of the year. A few remain during Winter, but not so common then as the Downy. Generally nests to the north of us, but a few build here.

131. [361.] *Picus pubescens* Linn. Downy Woodpecker. An abundant species six months each year. Not abundant during Winter excepting in open seasons. Common from September 1st to January 1st and from March 1st to May 1st. Not often found nesting here, but a few remain in May, June and July.

132. [369.] *Sphyrapicus varius* (Linn.) Baird. Yellow-bellied Woodpecker. Arrives from March 29th to April 12th, and remains until May 20th before passing north to breed. Does not nest with us. Rarely in the Fall.

133. [371.] *Hylotomus pileatus* (Linn.) Baird. Pileated Woodpecker. Logcock. A rare transient. Passes through irregularly Spring and Fall. Sometimes taken in Winter. Never Summers. Formerly quite common, if we are to believe the settlers' stories of times fifty years ago.

134. [372.] *Centurus carolinus* (Linn.) Bp. Red-bellied Woodpecker. Not a rare species Spring and Fall. Generally a migrant, although often found in Winter in severe seasons. Found

breeding once. May be taken any month of the year in deep woods some seasons. A beautiful and vivacious species. Shy and difficult to kill.

135. [375.] *Melanerpes erythrocephalus* (Linn.) Sw. Red-headed Woodpecker. A resident in extremely open seasons, but usually only seen from April 15th to October 20th. Nests abundantly in certain sections, but not nearly so common as formerly.

136. [378.] *Colaptes auratus* (Linn.) Sw. Yellow-shafted Flicker. An abundant species nine months of the year. It has been reported every month of the twelve, but is rare in Winter. Often arrives by Feb. 20th, however. Nests in abundance.

137. [382.] *Ceryle alcyon* (Linn.) Boic. Belted Kingfisher. A well known bird, nesting abundantly. Common from March 15th to Oct. 10th. Often seen in midwinter when streams are open. Arrives generally about March 10th. Not rarely seen in early December.

138. [387.] *Coccyzus americanus* (Linn.) Bp. Yellow-billed Cuckoo. Although not considered rare in many parts of the State, this species is never common here, and has only been captured a few times in the county. I have never taken it.

139. [388.] *Coccyzus erythrophthalmus* (Wils.) Baird. Black-billed Cuckoo. A common species about four months of the year. Arrives about May 15th, rarely earlier. Departs in late September. Nests abundantly.

140. [395.] *Asio americanus* (Steph.) Sharpe. American Long-eared Owl. I think this species may be considered a resident, but am not positive. It is not rare in certain sections during Spring and Summer. Nests have been taken in the county. Six fresh eggs were taken as early as April 27th by Mr. Chambers. A nest containing five young was also secured May 22d. The young were ready to flutter from the nest, but an effort to raise them failed, all dying after a few days.

141. [396.] *Asio accipitrinus* (Pall.) Newton. Short-eared Owl. A rare species generally. Only taken a few times. Sometimes found in woods, more often on prairies.

142. [397.] *Strix nebulosa* Forst. Barred Owl. A common species in sections. No record of egg capture, but they certainly nest here. A resident undoubtedly. Have kept specimens alive until quite tame. Live entirely on meat.

143. [401.] *Nyctale acadica* Gmel. Brd. Saw-whet Owl. A rare species. Only one capture to my knowledge. More abundant to the north.

144. [402.] *Scops asio* (Linn.) Bp. Little Screech Owl. Not a rare bird in certain quarters. Have twice taken it, and know of other captures. Mr. Chambers secured a nest containing five fresh

eggs in early May, 1878. The nest was in a hollow eighteen inches deep, in a dead stub.

145. [405.] *Bubo virginianus* (Gm.) Bp. Great Horned Owl. Our most abundant resident among the Raptores. Nests in hollow trees and in old nests of the Red-tailed and Red-shouldered Hawks. Messrs. Syke and Chapin, who have found a great many nests, have taken eggs as early as Feb. 12th, but the most eggs are taken in early March. The young fly in April. A pair of Owls frequently become attached to a piece of woods and build in one situation for several successive seasons. Two eggs is the usual number, sometimes three, and rarely only one. The nests are discovered by thumping on the trunks of the trees, when if occupied, the bird will leave the hollow or old Hawk's nest.

146. [406.] *Nyctea scandiaca* (Linn.) Newt. Snowy Owl. A rare and irregular Winter visitant. This species, unlike nearly all the others of the family, is never very fierce when confined and I have frequently stroked the head and back of a newly captured specimen, which would not have been possible in the case of the last named or any of the larger Owls of my acquaintance.

147. [420.] *Tinnunculus sparverius* (Linn.) Vieill. Sparrow Hawk. Abundant during migrations, Spring and Fall. Usually appears about March 15th. Again appears in September and October. A few remain to breed. The nest is placed in a hollow stub or dead limb, and is very difficult to secure. The eggs are rarely taken.

148. [425.] *Pandion haliaetus carolinensis* (Gm.) Ridgw. American Osprey. Fish Hawk. Only once captured to my knowledge in the county. A fine specimen was brought me April 13, 1885, which was shot within the city limits.

149. [430.] *Circus hudsonius* (Linn.) Vieill. Marsh Hawk. Arrives usually from March 10th to 20th. Sometimes a little earlier in advanced seasons. Few pass north of us, the marshes in our neighborhood offering inducements to the birds, of which they avail themselves in numbers. The last to leave us do not take their departure until early November. Breeds abundantly in sections covered by bushes and small trees, rank grass and marshy tracts.

150. [431.] *Accipiter cooperi* Bonap. Cooper's Hawk. An abundant Spring, Summer and Fall species. It is quite probable that a few birds occasionally straggle into our county in Winter, or perhaps remain during the season. Once saw a specimen in January. Usually appears, however, about March 10th, but often by the first of the month. Departs generally in late October. Nests usually in White-oak Trees, but also occupies Black-oak, Beech and Maple.

THE ORNITHOLOGIST

—AND—

OÖLOGIST.

A MONTHLY MAGAZINE OF

NATURAL HISTORY,

ESPECIALLY DEVOTED TO THE STUDY OF

BIRDS,

THEIR NESTS AND EGGS.

DESIGNED AS A MEANS FOR THE INTERCHANGE OF NOTES
AND OBSERVATIONS ON BIRD LIFE.FRANK B. WEBSTER, Publisher,
PAWTUCKET, R. I.

Editor's Notes.

We recently called attention (O. and O., X, p. 72) to the fact that the American Ornithologists' Union had secured a grant from Congress for the establishment of a branch of Economic Ornithology under the division of Entomology of the Department of Agriculture. Of this branch, Dr. Merriam has been appointed Ornithological Agent.

A circular issued by Dr. Merriam says, "The scope of the investigation will cover the entire field of the inter-relation of birds and agriculture, particularly from the entomological stand-point. The inquiry will relate primarily to the food habits of birds, but will include also the collection of data bearing on the migration and geographical distribution of North American species.

. The co-operation of farmers is solicited, and those having knowledge of food-habits which are beneficial or detrimental to agricultural or horticultural interests are requested to communicate the same to Dr. Merriam.

The assistance of persons willing to aid in the collection of birds' stomachs is particularly desired.

Information is also wanted concerning the presence and habits of the so-called "English Sparrow" (*Passer domesticus*) in the Southern States and in the region west of the Mississippi."

The question, considered in its Economic Relation to Agriculture, is thus concisely stated: "The wholesale slaughter of small birds has been known to be followed by serious increase of noxious insects. On the other hand, invasions of insects which threatened to devastate large tracts of country have been cut nearly short by the timely services of some of our native birds."

A circular containing a series of questions has also been issued designed to systemize the proposed researches. Copies may be obtained by addressing Dr. C. Hart Merriam at Sing Sing, N. Y., until October 1st; after that date at the Department, Washington, D. C.

Obituary.

DR WM. WOOD, EAST WINDSOR HILL, CONN.

It is again our painful duty to record the loss of one of our most valued contributors. Few names are better known in the ornithological world than that of Dr. Wood. A well-known physician in the State to which he belonged, he was more widely known as an enthusiastic naturalist—and especially as an ornithologist whose opinion was widely sought and universally respected. He was also a taxidermist of large experience and talent. His collection of birds and eggs both native and foreign is one of the largest in private hands in the country. It is said, probably with truth, that a large proportion of them have been prepared by his own hands.

His writings have consisted principally of communications to local and other papers mainly on the birds and fishes of New England. He also contributed to some of the earlier volumes of this Magazine, but of late he confined himself to occasional notes on subjects which were being discussed.

Dr. Wood died at his residence, East Windsor Hill, Sunday evening, August 9th, at the age of sixty-three years.

Practical Taxidermy.

BY FRANK B. WEBSTER.

It is not the purpose of the writer of these papers on Practical Taxidermy to address those who have spent years in practicing the Art. He knows that there are many points upon which he would better take the place of a learner than presume to teach. Perhaps also the future expert may in the not distant future look upon his instructions with feelings not unlike his own when he examined a specimen stuffed by a grandfather, whose process was "Bake slowly in an oven until hard—then nail to a natural piece of pine firewood."

But there are many—a few of whom will become the experts of the future—whose aspirations formed by gazing from time to time at the specimens in the little shop of " * * * * Taxidermist" only at present extend to preserving for their cabinets the birds they meet with in their rambles in the fields and woods. To this class especially these pages are addressed, in the hope that the experience gained by eighteen years of practical taxidermal work may not be without its lessons, and may help to smooth over the difficulties which are met with by the inexperienced in this as in other pursuits.

A question frequently asked me is, how many birds did you stuff before you felt sure of saving your specimen? I reply, perhaps about fifty, and I felt at ease after the first hundred. If you ask me when I got so that I could do them perfectly, I must be excused. Each attempt must be made with the intention and purpose of exceeding the previous one. If you are a close observer you will see improvements that you could have made, and by endeavoring to make them you will eventually reach a goal sufficiently near perfection to be practical.

CHAPTER I. COLLECTING.

It is by no means an unimportant part of the profession to be a good collector. Care in selecting, shooting and keeping till ready to prepare, is half of the work. It takes me far longer to collect my specimens than it does to prepare them. After eighteen years collecting, I have finally settled down to the following outfit: A 12 gauge breech-loader, English make, weight $7\frac{1}{4}$ lbs., which cost me thirty-five dollars; a small muzzle loader, weight four pounds; common size basket with cover; very light rubber boots with lip pieces; light rubber coat and an under coat with plenty of pockets, and first-class field or opera glasses.

The breech loader is my favorite—gauge and weight—in my opinion it is the most practical gun for collecting; with it you can shoot far and near—large and small. There is but one objection, in collecting out of season or where the protective law is enforced—it is too conspicuous. While I deprecate *wanton* destruction of birds, I do not believe that a true naturalist should be interfered with while collecting specimens for preservation, any more than that a law should be passed prohibiting the sale of pork, on the ground of cruelty to animals.

One way to overcome the difficulty (I am supposed to be a dreadfully determined poacher) is to wrap the gun (in parts) in heavy paper and carry it this way until well on the grounds, doing the same in returning. This at least keeps stay-at-home-Tommy from howling on the corner of the Main street, What did you shoot? and similar annoyances.

An important rule is to *avoid annoying any one* by shooting in their doorway, tramping down cultivated land, and crossing grass lots just ready to mow. If a person "goes for you" be gentlemanly until all means to pacify him are exhausted—if possible avoid dispute, remembering that you wish to avoid a *first prosecution*. *Never give up a shot specimen, as it is the proof against you.* If you are determined, the average man will stop just short of carrying out his threats, and at the last moment, by keeping cool with a little tact, you can often bring him around, and as in my own case ending by his saying that "he don't know as he really cares, if the birds are to be stuffed."

My small gun is a help in such cases, when the neighborhood has been aroused and it is necessary to keep the gun concealed. This I carry in parts, the same as the other, and as soon as I shoot, if necessary, I take it to pieces—it is but the work of a few seconds—almost before the echo of the report dies away. I prefer paper for my cover as it is the best screen. With these precautions I ask for no permit, but take my chances.

The basket I find to be very handy, and it is easy to carry. I object to a fish basket on the grounds of publicity—and prefer a good big deep pocket to both. Many persons cannot go with wet feet with impunity—and at least it is very uncomfortable. It is impossible to collect on marshes or in swamps without encountering more or less water. Many times your bird drops just across the little brook that must either be waded or a long walk has to be taken. For these reasons I very often wear the rubber boots and

many a time have found their usefulness. Late in the season the rubber coat will be found a good protector. On the marshes nothing equals it as a spread. After a little practice you will find a pair of glasses, either field or opera, of great value. With them you can determine a species at a distance, and save many steps. You can also observe their actions very differently than when disturbed by your approach. It will be a great advantage to you to study their various positions, which is a greater help than any illustrated book. I would not be without them.

Loading is important. For my twelve bore I load shells as follows:

For Ducks	4 drams of powder	1½ oz. No. 4 shot.
Grouse	3 "	1½ " " 6
Quail	3 "	1½ " " 8
Plover	3½ "	1½ " " 8
Oriole	2½ "	1 " " 10
Warbler	1½ "	½ " " 12 or dust.

The last for Warblers is for close shooting say thirty feet, and for this I generally use shells that have been used before (reloaded.) There is some difference in guns. I find the above to work well with mine, and any one trying it to start with, can soon by experimenting determine the variation they may require. Use only the best quality of powder—a cheap grade is too expensive—you will lose more birds than the difference in price will amount to. As a general thing I use only two wads, one between powder and shot and one after, and crimp all, except those for Warblers. I do not use brass shells; it is too much trouble to save them; prefer not to be loaded down on the return trip. On several occasions when out with others, I have been amused at their annoyance at finding their shot all rattled out, owing to the wads starting in their brass shells. Perhaps in long trips where a supply of paper shells could not be easily obtained, it would be best to use the brass ones. I use only the best wads.

My small gun. You ask why not a breech loader? For this reason, it is a very strong barrel—it is about forty-two gauge, and being a muzzle loader I can use a larger charge than any cartridge used for the same size. When loaded it holds what we used to know as four fingers. With it I can kill as far as with my twelve bore, but of course have to shoot close.

So much for my outfit. Take it for your guide to start with, Simple as it is, it cost me many dollars experimenting, buying this thing and that, until I finally settled down to it.

I find that break of day is the best time to collect our common birds. Have everything prepared the night before—gun cleaned, shells loaded, a supply of cotton, some newspapers cut in one-quarter and one-half sheets, also a lunch—

one that you can carry in your pocket. Take an early start, so as to be on the grounds an hour before sunrise. (Here let me advise that just before starting, you take a cup of coffee and eat something, it nothing more than a cracker—you will find by so doing you are in better trim for your tramp. Those who are informed tell us that it is safer. The system is better prepared to resist any bad effects, colds, etc.)

Locate yourself if possible by a stream, near the edge of timber land. Now listen, you hear rustles and chirp. Soon a note. Cock Robin breaks forth with a song, our New England Mocker (Thrush) replies from a neighboring scrub oak, and so it goes, and by the time Old Glory shows himself above the line, you have it on every side. If you have selected the right place, you can obtain a surprising variety without moving far. Bird after bird will enter and leave the woods at the corner, and small ones will pass and repass from the swamp by the stream. Unless you are an expert, don't try to shoot on the wing, you will have plenty of chances on those trees; move under them and wait. There they come. That little fellow alights. Now be careful, don't be too quick. If you are nervous, just lay down your gun. Sit down and have a smoke. If not a smoker, well, count a thousand backwards; by this time you feel better. Many a man has lost limb and life by getting excited. Keep cool and keep your wits about you. That gun while carefully handled is all right, but in careless hands it is fearful. One slip, an accident, and your future pleasure in this line is gone forever. Always bear in mind—*never shoot in a direction to endanger any one*, either a companion or passer by, whom you did not suppose was there. But to the bird—take a good aim, slow at first, with a little practice you can soon do it quickly enough. If possible shoot him side to you, it is less liable to shoot out the tail feathers. Now then, fire. Good! You have him, but he flutters. Pick him up at once. He is not quite dead. You cannot always kill outright—would that you could—we all wish so. Take your bird with the right hand and lay him on his back in the palm of the left. Press the thumb and forefinger of the right hand gently under the wings just under where they join the body so that you can feel the heart beat between, now press firmly and do not relax—this causes a collapse of the lungs and heart. Your bird will gasp a few times and all is over. It seems cruel, but it is the only thing to do, it quickly ends it, and in the most painless way I know of—it is the unpleasant part of the whole business, but there is no way of avoiding it. Few things there are

that we enjoy but are obtained only by more or less suffering. I make no excuse, but simply do it. I feel for each bird that suffers by not being killed outright. You who sit in judgment and would dictate, weigh the matter carefully before you condemn. Now open the bill and with fine forceps or a probe gently force cotton into the throat and a little into the nostrils—which will be found just at the upper base of the bill. This is to prevent bleeding and the stomach juice from running out, the latter being very hard to clean. In large birds fill the vent in the same manner. I seldom try to stop bleeding—occasionally where there is a large clot I wipe it off carefully with my knife, or cotton. If I am not moving about much, a bird that bleeds freely I lay down in a secure place. In a few minutes the blood will stop flowing. Take from your pocket a piece of the newspaper and make a tunnel or cornucopia, drop your bird in it head first, and close it by folding the open end, being careful not to bend the tail. This is done by two folds, one to the right and the other to the left. I sometimes pin the tunnel half way between the two ends, which will prevent its opening, but only for the larger birds. You can now place the tunnel with bird in your basket or pocket. If in the latter look out and not use a pocket that you are liable to sit on—not on account of the pin, but the bird.

You can easily carry two dozen birds. I say two dozen, but that is a good many. I would advise that a beginner should not shoot too many at one time. An attempt to go too fast will invite a poor result. Well, do as you like, only stop sometime. About eight o'clock birds do not sing as loudly as at sunrise, and it becomes more quiet. A few birds continue their song, the Red-eyed Vireo being conspicuous. What becomes of the others? I confess I could never quite satisfy myself. In the woods and swamps that an hour or two since fairly rang with their notes, all is quiet. You cannot even see the birds. They evidently retire and you might as well do the same, the collecting hour has passed. Rainy weather is a poor time to collect, avoid it if possible. You now start for home; when you arrive take out your papers, remove the birds from each; smooth them by gently passing through your hands, place them on a plate or board, in a cool place. The cellar bottom (if there are no cats or rats), is the best. I do not like to use an ice chest as it is apt to sweat them. Drop all thoughts of them, clean up, sit down to a good square meal—one worthy of the appetite that you have gained. "Take it easy" for a while. After you are rested I will introduce you to the work room.

A Birds'-Nesting Ramble in Lapland.

BY ALFRED CRAWHALL CHAPMAN. (*The Ibis*.)

(Concluded from page 127.)

June 26th. We made an early start this morning and reached some high fells, some ten miles from Pulmak, before the sun's heat had time to strike us. Another thunderstorm greeted us here, and when sheltering under a boulder a male Ring Ouzel appeared before us, the only one we saw in Finmark. I secured a pair of Dotterel here, and then we descended into a vast expanse of bog and morass. It appeared a charming place for birds; but although we tramped about for many hours in the most likely-looking spots, we never even saw or heard any thing save an occasional Golden Plover. Coming home, I secured a pair of Lapland Buntings and found several nests of Fieldfares and Mealy Redpoles with young. From a small lake in the midst of a thick forest, six Wood Sandpipers together dashed off with the wildest screams. I had been attracted thither by cries which proved to arise from a family of young Siberian Jays (*Perisoreus infaustus*). They were hopping about from branch to branch in a sprightly manner, reminding me of the habits of a Jackdaw or Magpie. Two which I secured were fledglings, not a week out of the nest, and were clothed in a soft hairy dress, the rusty-red color on the bastard wing and tail being conspicuous in all their movements. I never found a nest of this species, though it was evident these birds had been hatched in the immediate neighborhood. We observed Mealy Redpoles, generally single birds, affecting the highest fell-tops to-day, and busy feeding among the boulders and reindeer-moss. In rowing up the Pulmakelf on the 27th, we found several Temminck's Stints' nests with broken eggs, caused by the rising of the river, and we also got one with four fresh eggs. A male Goosander (*Mergus merganser*) slipping slyly away from an islet in a backwash of the river, arrested our attention, as we had seen him there several times before; and on landing on this island, overgrown with Birch scrub, the female Goosander slipped away from her nest, a circular hole in the sandy ground, 10 inches in diameter and 6 inches deep, thickly lined with her dusky-colored down, containing ten cream-colored eggs, quite fresh. The birds never came near the nest while we were there. When looking for the nest of a Greenshank which we had disturbed, we found a Willow Warbler's nest, lined with the fine grey-mottled feathers from the back of a drake Wigeon, with seven fresh eggs.

June 28th. Many Wheatears have eggs now;

their nests are made of the roots of the ling and moss, and lined with reindeer-hair. I observed a Garden Warbler (*Sylvia hortensis*) singing quite near me to-day, and obtained a Wigeon's nest, with six fresh eggs. They were laid under a willow bush on the banks of the Tana. House Martins are busy nesting in the crags, and Grey-headed Wagtails are very common. We obtained two nests of the latter with fresh eggs to-day. A Lap brought me a very interesting nest of the Great Grey Shrike, constructed, as usual, of the white feathers of the Willow Grouse; but this was overlaid with glossy Raven's feathers, and the lining, on which the single egg was deposited, consisted of reindeer hair.

June 29th. While we slept the grass round our little house had turned green, and I was assured it would be two feet high in ten days' time, so rapid is the growth of plants and trees in the short Arctic Summer. We took leave of Pulmak and our kind landlord to-day, and as we turned the bend in the river, we could not help being struck with the wondrous change that we had witnessed during our short stay. Our journey down the river was rapid, and, reaching Gulholmen about 10 p. m., we proceeded to Vagge, the station at the head of the Tana Fiord, where the steamer was to pick us up. As we crossed the fiord a White-tailed Eagle slowly flapped across in front of us, and we were rather astonished to see several hundred Mergansers in a flock at this time of the year. The "gagging" of Geese on the flats at the mouth of the Tana gave us hopes of finding their eggs on the next day. We then visited the ground where I had seen the Red-throated Pipits (*Anthus cervinus*) on June 9th; their shrill pipe again arrested our attention, and after a long search we succeeded in finding a nest with six slightly incubated eggs. It was placed under a Birch bush, on a moss-hag, surrounded by water, and consisted of very stiff stalks of grass externally, and finer white grass for a lining, but the whole was of a distinctly rougher texture and construction than is the nest of its congener, the Meadow Pipit. I was very careful in the identification of these eggs; and after finding the nest, we watched the female, though very sly and retiring, go on to it, when I procured her. Their habits now were more retiring than formerly, and they rarely showed themselves, seeming to prefer creeping along among the roots of the Birch scrub, whence, when unmolested, they uttered a pleasing little song, at times not unlike that of a Canary. Their eggs have suffused blotches on them, and more resemble those of the Blackcap than those of the Meadow Pipit. Presently we flushed a Temminck's Stint from her

nest and four eggs, placed far away from water; and from about the last tree in Europe came the loud cackle of a Siberian Jay, which proved to be a fledgling of the year.

On the bare fell-tops we found Snow Buntings and a pair of Shore Larks; from the oviduct of one of the latter I took an egg ready for laying. These birds are said by Summerfelt, the Vadsø naturalist, to breed twice; and this would seem to corroborate his statement. They must have a considerable vertical breeding range, for though breeding at Pulmak at the lowest possible level, they seemed here to vie with the Snow Bunting in the altitude of their haunts. We revisited the Osprey's breeding place, and were surprised to find a new nest, from which the bird flew at our approach, but it was empty. I believe this nest had been built by the male bird alone, for though we waited some time, we never saw more than this single Osprey. We observed to-day a large flock of Geese, some hundreds together, and at our approach they rose wild and departed, just as they had done on June 9th. Could these birds be going to breed? We were much puzzled by these flocks of Mergansers and Geese at this season of the year. The mosquitoes were beginning to affect us seriously now: the hissing column followed us alike on mountain top and lowland bog; escape was impossible. In a short walk on the fells in the evening of July 1st I shot a female Ptarmigan (*Lagopus mutus*); her ovary contained fifteen undeveloped eggs. A pair of Bramblings were evidently nesting on this fell-side, though there was no plant growth exceeding two feet in height. Next day, on a bent-grass island in the fiord, we found two nests of Temminck's Stints, each containing four eggs, and a Mealy Redpole's nest had one fresh egg. On the 3d the Vadsø steamer was due at 8 p. m.; but as the boat did not arrive till exactly twelve hours afterwards, in strict accordance with Norwegian practice, we passed the time in watching the seals and small flocks of old male Goldeneyes in their mature plumage, the white cheek spot being very conspicuous. On the 4th, at 8.30 a. m., the steamer 'Orion' arrived; we rounded the dreary-looking cliffs of the North Cape about midday (July 5th), and reached Hammerfest at night. On the evening of July 6th we reached Tromsø, and I spent the night watching the birds on the west side of the island. Redshanks, Oyster-catchers, and Ring Plovers were simply swarming, and I caught young in down of each. Great flocks of Eiders, ducks and drakes with their young, with one brood of Long-tailed Ducks, Black Guillemots, Red-throated Divers, and various Gulls fairly covered the smooth surface of the fiord,

and their cries were deafening in the still night air. In the woods Fieldfares, Redwings, Bramblings, and Willow Grouse abounded, and I saw many fledged young of the three former species.

In a naturalist's shop in Tromsø were many beautiful specimens of Bar-tailed Godwits in their rich red Summer plumage. My servant told me he shot them regularly during the Spring migration. How strange it is that they should be so seldom found in the breeding season! Trinius also had Grey Phalaropes, in their red Summer dress, which he had shot in Spitzbergen the year before. On July 9th I visited some of the islands lying off Bodo; but the season for eggs was now nearly over, and, with the exception of one nest of Richardson's Skua, with two eggs, many of the Arctic Tern, and one nest of the Rock Pipit with three eggs, we got nothing. A pair of Turnstones evidently had their young here. One thing which struck me as peculiar in the habits of the northern breeding birds was the large clutches of eggs laid by such species as Bramblings, Bluethroats, Willow Wrens, Fieldfares, Redwings, Shrikes, Wheatears, &c. Nearly all the nests contained as many as six eggs, and it was not unusual to find seven; one nest of a Redstart had eight eggs.

In concluding my rambling notes, I take this opportunity of thanking Professor Collett for giving me a copy of his excellent paper on the "Ornithology of Northern Norway." I have carefully endeavored to convey exactly what I saw, and I may add that this paper is little more than a reproduction of what I jotted down at the actual time of observation. This, I hope, will give it freshness; and although there may not be anything novel, I trust there may still be found something interesting, and perhaps useful, to future naturalists visiting that portion of East Finmark known as Tanadalen.

Californian Oological Notes.

BY H. R. TAYLOR, ALAMEDA, CAL.

As the collecting season of '85 has been for me a very successful one, a few short notes and observations concerning some of our Californian birds may prove of interest. I took my first set on February 13th. This was a nest and two badly incubated eggs of the Anna Hummingbird, which were secured after no little difficulty, as the nest was placed about thirty feet from the ground near the end of a long, slender limb in a Cypress tree. Since it takes this Hummingbird about eight days to complete the building of its nest, it must have commenced building some time in the latter part of January.

On the 14th of March I took a set of six fresh eggs of the American Long-eared Owl. Eggs were deposited with a few Owl's feathers on what had been a large rat's nest, in a small Oak about twelve feet above the ground. *Asio americanus* is considered quite rare in this locality, though common in many other parts of the State. In searching for the other Owl's nests on the same day, I climbed up to another rat's nest, and finding it much too dome-like in shape to suit an Owl, I used my fist vigorously on the top of it, and soon succeeded in forming a very good nest. I then left that locality intending to return another time and collect the rent in eggs should any venturesome Owl take possession of my nest for a domicile. Happening to be near my Owl's nest some ten days later, I hit it with a rock, and off with a great fluttering flew a Long-eared Owl, doubtless the same bird that had supplied me with the set of six taken March 14th. On reaching the nest I found but one fresh egg, which I left untouched in order to secure the full set later. When I returned to get the set the nest still contained but the one fresh egg which had been badly pecked by some bird, possibly a Californian Jay.

During the breeding season the noisy Plain Tits are common birds on the woody peninsular on which Alameda is situated, building their cosy nests of dry grass, hair and feathers in the many sheltered holes in the Oaks. From the fact that many of them begin to construct their nests as early as March 7th, the selection of a hole well sheltered from the rain, is a very necessary precaution. So very secure are some of the places selected for nests that the eggs can often only be reached after the most vigorous use of a sharp hatchet, or by means of a delicate scoop attached to a long stick.

It is a rather singular fact that the Plain Titmouse is a common bird in some localities, while in other parts of the country, apparently as eligible, they are seldom if ever seen. The desperate manner in which these interesting birds repel all intrusion of their nests is really remarkable, and often proves fatal to the interests of the collector of perfect sets. When the Plain Tit has commenced the incubation of her eggs it is sometimes almost impossible to remove the bird from the nest, and when this is finally done, the collector is fortunate indeed if one or more of the eggs are not found to be injured by the claws of the bird in her frantic efforts to protect her nest.

When probed with a stick the bird responds by spasmodically fluttering her wings, and at the same time emitting a curious hissing noise. This is probably done with the view of scaring off the

intruder. I once took a female Plain Titmouse from her eggs with my hand, and liberated her at the mouth of the hole only to see her dart down to the nest again. She repeated this manoeuvre several times before I finally secured the set. They raise but one brood a year.

While it may not be usual for the Californian Quail to desert its accustomed nesting place on the ground and lay its eggs in trees and hedges, several such instances have come under my observation during the past two years. I secured a set of Spurred Towhee's Eggs from a Cypress hedge, about four feet from the ground, but did not remove the nest. Some time afterwards I found that the nest contained several fresh Quail's eggs. When ten eggs had been laid the incomplete set was stolen by some unknown human marauder. Besides the above I know of three other instances where I found their eggs above ground, either in a tree or hedge. On May 8th, I saw a boy find a nest of the Spurred Towhee on the ground, in which were four eggs of the Towhee and two eggs of the Californian Quail.

Of large sets taken by myself this year I can record Western House Wren, nine; Plain Titmouse, eight; and Lutescent Warbler five. Of smallest(?) I took Plain Titmouse, five, and three(?) Spurred Towhee, two; Least Tit, five; Green-backed Goldfinch, three; and Western Lark Finch, three. The small sets were all taken with incubation either commenced or advanced.

Californian Clapper Rail.

(*Rallus obsoletus*.)

BY W. O. EMERSON, HAYWARDS, CAL.

This Rail seems to be the only one of the family whose nesting habits are known on this coast. W. E. Bryant, of Oakland, Cal., was the first observer who wrote anything of it. (See the Bulletin of the Nuttall Ornithological Club, April, 1880.)

I will give my experience of its breeding habits, as observed during the last three years.

I have found the bird common at all times of the year in the salt marshes bordering the San Francisco Bay, which is four miles in a direct line from Haywards, Cal. When startled from the sloughs, they take as readily to wing as a duck, and if closely pursued will try to hide by diving again and again, seldom taking to the grass or salt weed. When wounded they give three or four cackling notes every time they dive. In walking along the slough banks at low tide quietly, they can be seen wading through the soft mud, probing here and there for worms and insects, which mostly compose their food. I have also seen

them come out of the long salt grass along shore, feeding here and there at the edge of tide drifts. They have a long running stride, body held close to the ground. My first nest was found June 3, 1883. It was placed on long salt grass bent down in a mass, some of the blades woven in and out of the standing stalks to keep it in place. The nest was bulky, rather flat and solid, within a few inches of mud. This salt grass is found only along the low places where the high tides have a chance to overflow, and along the old creek ways running through the marshes. Nest complement, seven eggs, just on eve of hatching. This was the only set out of five nests examined. My last year's trip to the marsh was late again, as my first had proved to be. I went down on May 11th, 1884, found nine nests, but all empty, all had hatched and gone, as shells lay about the nests.

This season I had better luck, as I got to the breeding grounds April 18, 1885, and found I was none too early. Five nests were examined and two full sets of eight and nine found among the five. Number one (as I shall call them as found) was about 500 yards from the bay shore, placed in long salt grass four inches from the ground. Number two only 100 yards from the shore.

Another trip made May 4th to the other side of the creek, where three nests of eight eggs each were found, out of seven examined. All were placed from four to six inches from the ground, measuring 10x10 across the top of nest, one and a half inside depth, three to four inches from the ground. Nest three was placed on salt weeds in open ground, instead of in the long salt grass as usual.

One nest of seven glossy jet black chicks was found, seemingly just out of the shell, one not quite dry. All but this one would hold their long necks out, moving them from side to side, and calling in a low plaintive tone *pe-ee-ep, pe-ee-ep*, very much like a weak young chicken. Putting these little fellows in my basket for further study at home, no more attention was paid to them until I got to my buggy, when I found two of them missing, knowing, no doubt, the fate awaiting them. On skinning one I noticed a small claw sticking out from second joint of each wing, not more than a sixteenth part of an inch long, claw part turning down, of a light horn color and comparing only to a little kitten's claw; it was found on all the chicks.

I suppose we have here one of the links going back to the time when birds were part reptiles, called *Pterodactylus*. Cuvier, in his "Osteology," gives the following description of this bird-like reptile: "You see before you an animal, which

in all points of bony structure, from the teeth to the extremity of the nails, presents the well known saurian characteristics, and of which one cannot doubt that its integuments and soft parts, its scaly armor, and its organs of circulation and reproduction were likewise analogous. But it was at the same time an animal provided with the means of flying; and, when stationary, its wings were probably folded back like those of a bird; although, perhaps, by the claws attached to its fingers, it might suspend itself from the branches of trees. Its usual position when not in motion would be on its hind feet, resting like a bird, and with its neck set up and curved backwards, to prevent the weight of the enormous head from destroying its equilibrium. The animal was undoubtedly of the most extraordinary kind, and would appear, if living, the strangest of all creatures."

The measurement of these little Rails are, length $3\frac{1}{2}$ ins., wing $1\frac{1}{2}$, leg $1\frac{1}{8}$, extent 3, bill $\frac{3}{8}$, of a dull bluish black at the base, and tipped with greyish white.

The Rail no doubt commences to incubate from laying of first egg, as sets one and two had three of the set fresh, others just began, some embryos well advanced. Sets three and four, two-thirds advanced, while the last set was far towards hatching; embryos having down on. There is not any variation in the ground color of eggs, excepting sets one, two and five, one egg in each being greyish white, the last set is more blotched than the others. Set one has three of the eggs with a number of lines over the larger end, the markings are of spots and specks centering around the larger end, a few more or less all over the shell, color reddish brown and lavender, the latter appearing as if beneath the shell. Sets two and three seem to have the lavender spots and specks predominating and more scattered over the whole shell. The ground color is of a creamy buff, but not so strong as a set of the Eastern Clapper Rail before me. All are of one general shape, one egg of set five has a slight swelling on one side, with cracks branching out from it, as though it might have been done when dropped by the bird. It may have been done while the shell was still soft in the ovary sack, egg part being too large for shell forming around it, causing the swelling. Egg was far advanced. I give here the measurements of the five sets, representing forty-one eggs.

Set one.—1.75x1.20; 1.69x1.20; 1.66x1.18; 1.74x1.22; 1.76x1.20; 1.77x1.22; 1.79x1.22; 1.73x1.24.

Set two.—1.65x1.25; 1.63x1.24; 1.64x1.23; 1.63x1.25; 1.62x1.26; 1.64x1.24; 1.61x1.25; 1.67x1.25; 1.61x1.26.

Set three.—1.77x1.24; 1.77x1.24; 1.77x1.28; 1.77x1.25; 1.81x1.26; 1.77x1.25; 1.77x1.23; 1.67x1.26.

Set four.—1.68x1.17; 1.68x1.19; 1.73x1.17; 1.73x1.21; 1.75x1.21; 1.71x1.17; 1.73x1.20; 1.75x1.18.

Set five.—1.70x1.22; 1.77x1.25; 1.77x1.27; 1.80x1.27; 1.82x1.25; 1.80x1.30; 1.78x1.24; 1.73x1.25.

CALIFORNIAN SONG SPARROW.—I wish to say to the collectors through the O. and O. that all the eggs sent east by collectors from this coast, of the Californian Song Sparrow, (*Melospiza fasciata samuelis*), are not what they are supposed to be. They are the variety *heermanni*, which are found only in the hills and canyons back from the salt marshes and sea coast, *M. fasciata heermanni* being more common than *samuelis*, which I have only found on the salt marshes breeding, and not by any means as common as its first cousin *heermanni*. The *samuelis* or Californian Song Sparrow is a much smaller bird than the Heermann's Song Sparrow. All the catalogues of dealers have the latter Sparrow's eggs marked higher than the marsh variety, *samuelis*, which is not so common.—W. O. Emerson, Haywards, Cal.

Summer Birds of Raleigh, N. C.

BIRDS OBSERVED AT RALEIGH, N. C., DURING THE MONTHS OF JUNE, JULY AND AUGUST, 1881-1885, BY H. H. AND C. S. BRIMLEY.

An asterisk is attached to the names of all birds that we are aware breed here.

1. Robin, (*Merula migratoria*). A few only stay the Summer.
- 2*. Wood Thrush, (*Tylocichla mustelina*). One of our commonest wood birds.
- 3*. Mockingbird, (*Mimus carolinensis*). Common; raises several broods in the year.
- 4*. Catbird, (*Mimus carolinensis*). Very common indeed, nests rather late; first nest found in 1885 was on May 10th, and nests were not plentiful until about two weeks late.
- 5*. Brown Thrasher, (*Harporhynchus rufus*). Fairly common (in the early part of the season at least); not often seen in mid-summer.
- 6*. Bluebird, (*Sialia sialis*). Tolerably common.
- 7*. Blue-gray Gnatcatcher, (*Poliophtila cærulea*). Common; first nest of '85 found on May 5th. This little bird is generally known in this neighborhood as "Mossbird," from the structure of its nest.
- 8*. Tufted Tit, (*Lophophanes bicolor*). Fairly common.
- 9*. Carolina Chickadee, (*Parus carolinensis*). Very common. Nest found May 5, 1885.
- 10*. Carolina Wren, (*Thryothorus ludovicianus*). Common everywhere.
- 11*. Brown-headed Nuthatch, (*Sitta pusilla*). Common; only found one nest this year, and that contained young nearly able to fly.
- 12*. White-bellied Nuthatch, (*Sitta carolinensis*). Rather rare in Summer; I have never found the nest, but have shot young birds only just out of the nest once or twice.

- 13*. Black-and-white Creeper, (*Mniotilta varia*). Fairly common in Summer; have observed old birds feeding newly fledged young, and so conclude it breeds.
- 14*. Pine-creeping Warbler, (*Dendroica pinus*). Common and breeds, but nest is not often found.
- 15*. Yellow-throated Warbler, (*Dendroica dominica*). Fairly common, appears to frequent Pine trees more than any other.
- 16*. Prairie Warbler, (*Dendroica discolor*). Rather rare. Found a nest in early part of June.
- 17*. Summer Yellowbird, (*Dendroica aestiva*). Rather rare.
- 18*. Maryland Yellow-throat, (*Geothlypis trichas*). Common in low bushes along branches and creeks.
19. Small-billed Water Thrush, (*Siturus naevius*). Seen once in June, 1884; generally common in the latter part of August.
- 20*. Yellow-breasted Chat, (*Icteria virens*). Fairly common; breeds rather late.
- 21*. Redstart, (*Setophaga ruticilla*). Fairly common.
- 22*. Cedarbird, (*Ampelis cedrorum*). Very irregular in its occurrence at all times, generally common in June; only a few appear to breed here.
- 23*. Summer Redbird, (*Pyranga aestiva*). Not uncommon.
- 24*. Red-eyed Vireo, (*Vireosylva olivacea*). Our commonest Vireo.
- 25*. White-eyed Vireo, (*Vireo noveboracensis*). Common in low thickets.
26. Yellow-throated Vireo, (*Lanivireo flavifrons*). Very rare; I think it may breed.
27. White-rumped Shrike, (*Lanius ludovicianus excubitorides*). Aug. 25 and 28, 1884.
28. Barn Swallow, (*Hirundo erythrogastra*). Not common.
- 29*. Rough-winged Swallow, (*Stelgidopteryx serripennis*). Our commonest Swallow.
- 30*. Purple Martin, (*Progne subis*). Fairly common.
- 31*. Gold Finch, (*Chrysomitris tristis*). Fairly common at all times, sometimes abundant in Summer.
32. White-throated Sparrow, (*Zonotrichia albicollis*). Once observed in June, 1884.
- 33* and 34*. Chipping and Field Sparrows, (*Spizella socialis* and *pusilla*). Both very common.
- 35*. Indigo, (*Passerina cyanea*). Fairly common. Nests quite late.
- 36*. Blue Grosbeak, (*Guiraca caerulea*). Called "Big Indigo" by the natives. Nests later than even the Indigo Finch, and always makes its nest largely of lint cotton.
- 37*. Cardinal, (*Cardinalis virginianus*). Common; begins nesting early in May or late in April.
- 38*. Red-winged Blackbird, (*Agelaius phoeniceus*). Fairly common in Summer.
39. Crow Blackbird, (*Quiscalus purpuraceus*). A small flock observed in June, 1884.
- 40*. Orchard Oriole, (*Icterus spurius*). Fairly common.
- 41*. Bee Martin, (*Tyrannus carolinensis*). Common.
- 42*. Great Crested Flycatcher, (*Myiarchus crinitus*). Fairly common; have never observed it later than July.
- 43* Wood Pewee, (*Contopus virens*). Common more especially in Pine woods.
44. A species of *Empidonax* also occurs which I have not been able to identify.
- 45*. Crows, (*Corvus americanus*). Fairly common.
46. Blue Jay, (*Cyanocitta cristata*). Quite rare.
- 47*. Ruby-throated Hummer, (*Trochilus colubris*). Common; nest not often found.
- 48*. Chimney Swift, (*Chetura pelagica*). Common.
49. Whip-poor-will, (*Caprimulgus vociferus*), and 50. Chuck-wills-widow, (*Antrostomus carolinensis*), are both tolerably common, but I have never found the eggs of either.
51. Nighthawk or Bullbat, (*Chordeiles popetue*). Generally very common sometime in August or the early part of September. I think a few breed.
52. Yellow-billed Cuckoo, (*Coccyzus americanus*). Fairly common, one of our latest arrivals.
53. Kingfisher, (*Ceryle alcyon*). Not very common.
- 54*. Little Sapsucker, (*Picus pubescens*). Common.
55. Big Sapsucker, (*Picus villosus*). Very rare.
56. Red-bellied Woodpecker, (*Centurus carolinus*). Quite rare in Summer.
57. Pileated Woodpecker, (*Hylotomus pileatus*). Rare.
- 58*. Yellowhammer, (*Colaptes auratus*). Rather rare in Summer. A few breed.
- 59*. Turkey Buzzard, (*Cathartes aura*). Quite common. A few breed in out of the way places in the woods.
60. Carrion Crow, (*Catharista atrata*). Common, but irregular in its occurrence; generally a number seen together.
- 61*. Sparrow Hawk, (*Tinnunculus sparverius*). Fairly common; a few breed.
- 62*. Red-shouldered Hawk, (*Buteo lineatus*). Not uncommon; breeds.
- 63*. Screech Owl, (*Scops asio*). Fairly common.
- 64*. Barred Owl, (*Strix nebulosa*). Fairly common.
- 65*. Carolina Dove, (*Zenaidura carolinensis*). Common.
- 66*. Quail, (*Ortyx virginiana*). Common. Has increased in numbers the last two years.
67. Killdeer, (*Oxyechus vociferus*). Occasional in June and July, and generally common in August.
- 68*. Woodcock, (*Philohela minor*). Rather rare.
69. Solitary Sandpiper, (*Totanus solitarius*). Generally fairly common in August.
70. Least Sandpiper, (*Tringa minutilla*). Once seen first week in July, 1885.
71. Red-breasted Snipe, (*Macrorhamphus griseus*). One shot last week in June, 1884.
- 72* King Rail, (*Rallus elegans*). Rare.
73. Little Yellow Rail, (*Porzana noveboracensis*). One caught alive in Summer of '82.
74. Great Blue Heron, (*Ardea herodias*). Not common.
75. Great White Egret, (*Herodias egretta*). Accidental.
76. Little Blue Heron, (*Florida carulea*). Accidental.
- 77*. Green Heron, (*Butorides virescens*). Fairly common. Breeds.
78. Wood Ibis, (*Tantalus luculator*). Accidental.
79. Summer Duck, (*Aix sponsa*). Not common.
80. Black Tern, (*Hydrochelidon lariformis surinamensis*). Accidental in Summer.
81. Thick-billed Grebe, (*Podilymbus podiceps*). Occasional in the latter part of August.
- 82*. English Sparrow, (*Passer domesticus*). Common in the city.

ADDENDUM.—WINTER BIRDS OF RALEIGH, N. C.

(O. and O., August, page 128). Insert (between 22, Pine Finch, and 24, Grass Finch.) 23. Gold Finch, (*Chrysomitris tristis*). Fairly common.

CORRESPONDENCE.

We hope all our subscribers whose copies last month were marked to show their subscriptions are unpaid, will communicate with us. If any mistake has been made, we desire to rectify it. If any of our old subscribers do not care to continue their support to the Magazine, we equally desire to be informed of the fact.

Received.—D. D. Stone; Chas. H. Marsh; V. L. Kellogg; G. L. Kent.

17
P Birds

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No. 10.

Mississippi Valley Migration.

SPRING OF 1883.—Continued.

BY PROF. W. W. COOKE, MOORHEAD, MINN.

PIGEE BIRD, (*Sayornis fuscus*.) Fayetteville, Ark. First, March 21st, a few. Anna, Ill. According to Mr. Ridgway they are sometimes resident here. St. Louis, Mo. First saw a pair on March 16th, and on the 17th two more. A nest was found on April 9th. Manhattan, Kans. First by Prof. Popenoe, on March 17th; first by Prof. Lantz, April 2d. By April 29th they were in full Summer numbers. Griggsville, Ill. First on March 6th. Des Moines, Ia. First, April 17th. Coralville, Ia. First, March 31st. Nest and four eggs, April 30th. Polo, Ill. First, April 7th. Racine, Wis. First, April 13th. Jefferson, Wis. On April 4th, first, saw three, and on the 9th, about three or four to the mile. April 10th, quite common; on the 11th there was no increase, but a few more on the 12th. Waukon, Ia. First, April 6th, four seen. Mitchell, Ia. First, April 2d, one seen. Elk River, Minn. The first were two seen on April 12th.

RUBY-THROATED HUMMING-BIRD, (*Trochilus colubris*.) St. Louis, Mo. First saw one male on May 11th, and on the 14th the first female. By May 18th, they were mating. Griggsville, Ill. First, May 20th. Grand View, Ia. First, May 6th, Coralville, Ia. First, May 22d. Polo, Ill. First, May 11th; numerous on May 15th. Jefferson, Wis. First saw one male on May 15th. May 19th, three seen and two killed with number ten shot; not a feather injured. June 1st, height of the season. Hastings, Minn. First, May 24th. Elk River, Minn. First, May 22d.

CHIMNEY SWIFT, (*Chaetura pelagica*.) St. Louis, Mo. First seen on April 8th. By the 14th they had increased, and on the 18th the bulk of the species was here. Manhattan, Kans. First, April 29th. Glasgow, Mo. First, April 11th. Jacksonville, Ill. First, April 19th, three seen. Griggsville, Ill. First, April 11th. Grand View, Ia. First, May 6th. Des Moines, Ia. First,

April, 28th. Coralville, Ia. First, May 1st. Polo, Ill. First, May 6th. Jefferson, Wis. On May 1st, first, saw six, which came in the afternoon and immediately took possession of my chimney. May 4. First flocks have almost gone; only three or four birds are circling over the city to-day. May 9. Flock of seventeen seen, apparently migrants. In the afternoon there were many more, it being apparently the height of the season. May 12. Migrants have about all gone. Waukon, Ia. Six seen for the first time, May 6th. Mitchell, Ia. First, May 5th. Hastings, Minn. First, May 2d. Elk River, Minn. First, May 8th. Argusville, Dak. First, May 29th.

WHIP-POOR-WILL, (*Caprimulgus vociferus*.) Canton, Miss. First, April 4th. Oxford, Miss. First, April 1st. St. Louis, Mo. First seen on May 23d, but probably came before. Manhattan, Kans. First, May 28th. Grand View, Ia. First, May 20th. Coralville, Ia. First, May 3d. Jefferson, Wis. On May 19th, first saw one pair, and none heard nor seen thereafter. Mitchell, Ia. First, April 26th. Pine Bend, Minn. First, April 25th. Elk River, Minn. First, May 3d. [It is a little strange that the observers in Minnesota should have seen the birds before the observers in Kansas, Missouri and Wisconsin. The speed of this species is twenty-four miles a day; calculated from Oxford, Miss., to Elk River, Minn., a distance of seven hundred and eighty-five miles.]

YELLOW-BELLIED WOODPECKER, (*Sphyrapicus varius*.) Anna, Ill. According to Mr. Ridgway they are a Winter resident here, but I did not see any this Winter. St. Louis, Mo. Usually a transient here. On December 28th, saw one in the woods, but no more seen during the remainder of the Winter. The first this Spring were four birds, with no adult male among them, seen on February 22d. On March 11th, still the same; on March 13th, a newly arrived female was seen; and on April 4th and 5th, an old bird in high plumage. Litch, Ill. First, April 7th. Grand View, Ia. First, April 8th. Racine, Wis. First, April 6th. Jefferson, Wis. On April 4th, first

saw one flock of fifteen to twenty containing both males and females; they were very active, some mating and some already in pairs. No more flocks were seen during the Spring, but single ones and pairs every few days.

RED-HEADED WOODPECKER, (*Melanerpes erythrocephalus*). Duck River, Tenn. Resident; an average of two seen per mile on March 5th. Anna, Ill. Resident; the most common of the family, and at great enmity with the squirrel, who often steals his stores. St. Louis, Mo. A few remained through the Winter; two single birds and a pair were seen during one week about New Year. On February 22d, they were in the same numbers. On April 12th, many were found in heavy timber, but not generally distributed. May 1st, evident increase during the last few days. Manhattan, Kans. First, April 15th. Glasgow, Mo. First, April 23d. Liter, Ill. First, April 22d. Griggsville, Ill. First, April 6th, one seen. Des Moines, Ia. First, May 6th. Polo, Ill. First, April 3d; bulk came May 3d. Racine, Wis. First, May 2d. Jefferson, Wis. On May 6th, five males came in the afternoon, and during the following night there came about fifteen per cent. of full summer numbers. Mitchell, Ia. First, May 6th.

YELLOW-SHAFTED FLICKER, (*Colaptes auratus*). Fayetteville, Ark. Resident, common. Anna, Ill. Second most numerous species in Winter, occurring in flocks of from ten to thirty; feeds largely on ants and mast. St. Louis, Mo. A few remained during the Winter. On March 14th several were here in company with Robins and Blackbirds. The bulk of the species was here on April 4th, and from the 4th to the 8th was the height of the transients. Manhattan, Kans. A very common Winter resident; twenty seen February 10th. By March 25th, common. On the 31st, thirty were seen in a five mile tramp, and on April 7th fifty were seen in going over the same ground. Glasgow, Mo. First were twelve, seen March 13th. Jacksonville, Ill. Resident (in mild Winters). April 9th, have seen a good many the last few days. Osceola, Ill. First, March 1st. Grand View, Ia. First, two seen April 4th. Coralville, Ia. First, April 5th. Polo, Ill. Resident (in very mild Winters). Jefferson, Wis. First saw one on April 8th, and the next day three more. On April 9th, there were a few more, and on the 10th they were heard every few minute. On April 11th, there was no increase, but the 21st brought us a flock of seven. I have never seen them anywhere east of the Mississippi in such flocks as they occur in northwestern Minnesota. During the Spring migration mixed flocks

of Flickers and Robins by the hundred would be common for about ten days. They would be found along the edges of hard wood groves, feeding on the ground; patches of ground an acre or more in extent would be fairly alive with these two species, and then you might go a mile without seeing a specimen of either. Waukon, Ia. First, April 11th. Mitchell, Ia. First, April 2d, two seen. Hastings, Minn. First, April 16th, twelve seen; there are many around this season. Pine Bend, Minn. First, April 11th. Argusville, Dak. First, April 18th.

BELTED KINGFISHER, (*Ceryle alcyon*). Duck River, Tenn. Resident. Fayetteville, Ark. Seen March 17th. Anna, Ill. Resident, common throughout the year. St. Louis, Mo. First seen on April 6th, and by the 14th they were nest digging. Manhattan, Kans. Seen at intervals during December, January and February, even in very cold weather. Glasgow, Mo. First, April 13th. Grand View, Ia. First, March 27th. Des Moines, Ia. First, April 27th. Coralville, Ia. First, April 4th. Polo, Ill. First, April 3d. Jefferson, Wis. First saw one April 4th, and on the 11th two birds were seen for the third time. Mitchell, Ia. First, April 11th. Hastings, Minn. First one seen April 8th. Elk River, Minn. First two seen April 9th.

MOURNING DOVE, (*Zenaidura carolinensis*). Duck River, Tenn. Resident; were numerous April 1st. Fayetteville, Ark. Resident; though perhaps more common in Summer; in abundance March 17th. Anna, Ill. Resident; going through in great numbers April 10th. St. Louis, Mo. First, March 16th, one seen. April 15th, still few. April 19th, four seen in pairs. April 20th, more conspicuous. May 1st, flock of six going north. Manhattan, Kans. Were very abundant until the very cold weather in January, when they disappeared. Ten were seen as late as January 5th. Returned March 21st. Saw many on March 25th. April 7th, twenty in a five mile walk. Glasgow, Mo. First, April 1st. Jacksonville, Ill. First were three seen on April 7th. Liter, Ill. First, April 5th. Griggsville, Ill. First, April 3d, one seen. At first this bird was shy, and only uttered a low, plaintive note, and was not in sight, cooing only in the early morning; but by April 14th, it began to appear in roads and trees. Osceola, Ill. Partially resident in mild Winters. First seen on April 1st. Polo, Ill. Resident. [This is true as a general rule only of very mild Winters, but an instance is on record, of one staying a few miles north of Polo, during the whole of a very severe Winter.] Jefferson, Wis. April 18th, was the first for me, but it had probably come some days previous.

May 12th, slowly increasing, almost height of season. May 19th, about as numerous as it gets here. Waukon, Ia. First, April 29th. Mitchell, Ia. Numerous April 29th. Hastings, Minn. May 2d, first nest; on ground, two eggs, no nest, only a few sticks. When visited May 28th, the birds had hatched and gone. Elk River, Minn. First were a pair seen April 14th. Argusville, Dak. First, April 22d.

KILLDEER, (*Oxyechus vociferus*). Fayetteville, Ark. The first one was heard after dark, March 1st. Anna, Ill. According to Mr. Ridgway, is resident in mild Winters. St. Louis, Mo. First were four seen March 16th; a flock was also seen April 6th. Manhattan, Kans. First, March 1st; by March 10th, abundant. April 7th, only four or five seen in a five mile walk. Liter, Ill. First, March 2d, in flocks. Ellsworth, Ill. First, March 17th. Osceola, Ill. First, April 1st. Coralville, Ia. First, April 4th. Polo, Ill. First, March 22th. Racine, Wis. First, March 19th. Jefferson, Wis. First, March 17th; only three or four seen for the next three weeks. Mitchell, Ia. First were three seen on April 2d. Elk River, Minn. First, April 3d. [Average speed twenty miles a day from Fayetteville, Ark., to Elk River, Minn., a distance of six hundred and sixty miles].

WOODCOCK, (*Philohela minor*). Fayetteville, Ark. So far as I know personally, they are transients here, nor did I see any before March 1st, but I suppose they had come before that date, as I killed one last year in February. Anna, Ill. Resident. Osceola, Ill. First, April 20th. Not common here. Racine, Wis. First, April 20th. Jefferson, Wis. First, April 7th.

WILSON'S SNIPE, (*Gallinago media wilsoni*). Fayetteville, Ark. Mostly transients, though a few stay during warm Winters. Killed fourteen on February 27th, though I could not find any the week before. On March 1st they were moving north in goodly numbers. Anna, Ill. Resident, but irregular. St. Louis, Mo. Arrived March 14th, in small numbers in the bottom lands of the Mississippi; two hunters killed eight Snipe in six hours' hunting. Numerous April 13th, and continued common until after April 20th. Manhattan, Kans. First, April 16th; twenty-seven on May 4th. Jacksonville, Ill. Began to fly over March 26th; a good many April 9th. Coralville, Ia. First, April 30th. Polo, Ill. First, April 20th. Racine, Wis. First, March 10th. Jefferson, Wis. First, April 14th. Elk River, Minn. First, April 12th. [Average fifteen miles a day from Fayetteville, Ark., to Elk River, Minn].

SANDHILL CRANE, (*Grus canadensis*). Manhattan, Kans. First, April 14th. Osceola, Ill.

First, March 31st. Polo, Ill. First, April 15th. Waukon, Ia. First flew over on the evening of April 8th. Elk River, Minn. First, April 4th. Argusville, Dak. First, April 26th.

DOUBLE-CRESTED CORMORANT, (*Phalacrocorax dilophus*). Anna, Ill. First was April 1st, when a flock sailed into Bluff Lake. St. Louis, Mo. First, April 8th; two also seen on April 20th. Manhattan, Kans. First, April 28th. Grand View, Ia. First, March 27th. Coralville, Ia. April 21st, fifteen passed north. Hastings, Minn. First seen on April 18th. Elk River, Minn. First, April 17th, quite a number seen and a pair killed.

Notes from Silver City, N. M.

BY CHAS. H. MARSH.

A favorite nesting place with many birds in this vicinity is the "buckhorn" cactus, found in great abundance upon the prairies and near the foothills. In some instances dwarfed in size and of apparently small importance; in others rearing its gnarled and twisted branches bristling with needle-like points to a height of ten or twelve feet and spreading in every direction from the main stalk to a distance of twenty feet or more, it presents an almost impenetrable thicket, formidable alike to man and beast. In this inviting spot the Mockingbird, Curve-billed Thrush, Cactus Wren, House Finch, Canon Towhee, Black-throated Sparrow, Cassin's Kingbird, Road-runner and Mourning Dove build their nests and rear their young.

Of these the nest and eggs of the Mockingbird are too well known to call for a description. They are perhaps the most common of the birds breeding here and their nests are not confined to the cactus, but are found everywhere on the hillsides in the Scrub Oaks, Mountain Mahogany, Box Alder and similar dwarfed trees and bushes.

A near relative, the Curve-billed Thrush, seems to confine its nesting to the Cactus, nor do I remember to have found its nest in any other place. The nest is a rather bulky structure composed of intertwined sticks and twigs, preference being given to the thorny "cat's-claw," as if the spines of the cactus not being in themselves a sufficient protection, this added terror was needful to keep intruders at a distance. The lining is for the most part fine roots with occasionally a mixture of horse-hair. The size of the nest varies from a mass large enough "to fill a half-bushel measure," to one of six or eight inches in diameter, and is usually placed some five or six feet from the ground. The eggs are from three to five, in most cases four, of a light

greenish-blue, thickly speckled all over with fine brownish spots, mingled with traces of lilac. The average size is 1.15x.75, though they vary greatly in size and shape, even in the same set. Nesting commences early in April, my first set this season was taken the 8th, and continues through May. A second set is laid in July.

April 24th, while collecting Warblers, I discovered in the branches of a Scrub Oak the nest of a Lead-colored Tit. It was composed of weeds, fine grass leaves, wood and a few feathers so interwoven as to form a compact, bottle-shaped structure $7\frac{1}{2}$ inches in length, $11\frac{1}{2}$ in circumference at the largest and $5\frac{1}{2}$ at the smallest part. The opening on one side near the top, was about one-half an inch in diameter, and was carefully concealed from observation by an overhanging flap. The interior of the nest was lined with wool. The whole structure was suspended from a small branch some ten feet from the ground, its bottom resting on a somewhat larger branch, and it was still further steadied and secured by the attachment on each side near the bottom of several small twigs. The nest contained three pure white eggs, measuring .55x.35. Later in the season in other localities, I found two nests some twenty-five feet from the ground in Juniper trees; both contained young birds.

April 28th, I found my first nest of the Rock Wren for the season. It was under a flat rock on a hillside some twenty feet from a trail over which there was more or less passing every day. The space between the ground and the under side of the rock was not more than two inches at the entrance, gradually increasing towards the rear where the nest was situated, about a foot from the opening. The nest was a slight structure composed of fine roots and lined with hair and a little wool. The eggs were six in number, of a pure white, dotted with fine reddish spots, thickest at the large end; the small end being in most of the eggs entirely free from them. A curious habit of the Rock Wren is that of paving the ground around and in front of its nest, even to some little distance from the overhanging rock, with small pebbles and bits of glass. Whether this is done for the sake of ornament, or not, I will not venture to say, but I have found it a very good guide in looking for their nests. A few days later I observed a Rock Wren carrying material for a nest towards the wall of a ruined adobe mill. By close watching I located the nest and in due time secured it. A charred beam in the wall had left a hole large enough for the entrance of the Wren, the distance from the ground being some eight feet. On removing a portion of an adobe brick I came to a cavity in

which was the nest, containing seven eggs, the spots more evenly distributed over the surface than in the first mentioned set. Here, too, was the usual pavement of small stones, some of such a size that it is a mystery to me how they could ever have been carried to such a height by the diminutive owner and builder of the residence. This is the only instance that has come under my observation where the Rock Wren has built its nest elsewhere than on the ground.

Passing around to the outside of the wall, I saw a Say's Pewee fly from the projecting top of a ruined window casing, and stepping back a few feet I espied her nest. By some hard climbing I reached the window and found the nest, a neat structure of fine roots and grass, lined with wool and feathers, and containing six pure white eggs, measuring .75x.60; incubation pretty well advanced. Nearly a month previous to this I found a nest of the same species containing four fresh eggs fastened to a slightly projecting ledge on a high rock, which rose from one side of a shallow pool of water, at a height of about five feet. The Say's Pewee also builds about the eaves of houses.

Jan. 1, while hunting quail in a large Cactus patch I found a nest of the Cactus Wren, from which the bird flew at my approach. I examined the nest quite carefully and left it. A week later being in the same locality I thought I would take another look at my Wren's nest, but found it had been destroyed. After a little search I discovered another nest built in a Cactus at some little distance. This, too, at a subsequent visit proved to have been destroyed, and a third nest built in a new location, and no less than five new nests did I discover between January 1 and March, the last nest remaining unoccupied as late as the last of April when it too was destroyed.

April 23th, in another Cactus patch I found a nest some seven feet from the ground, shaped very much like a bottle, lying on one side. It was composed of feathers of the Scaled Quail interwoven with fine grass and was lined with feathers of the same bird. The length was nine inches, the greatest circumference twenty inches; the depth of the hole eight inches, with a diameter of two inches at the mouth. It contained four eggs of a reddish color thickly covered with spots of a darker hue, measuring 1.10x.75. Some twenty feet distant was a Cactus containing a second nest similar in structure to the first, but containing no eggs. The birds were near at hand and after I had shot one, its mate flew to the nest from which I had removed the eggs, hurriedly entered it, came out and flew to the second nest, which it also entered. I have been puzzled to know whether the second nest was used as a

residence by the male, while the female was sitting on her eggs, for it evidently belonged to the same pair of birds, and whether the nests first mentioned were built as residences to protect the birds from the storms of Winter or for breeding purposes, perhaps some one better acquainted with the habits of this Wren can inform me.

Another very common denizen of the cactus is the House Finch, one of our most abundant birds. A large variety of material enters into the composition of their nests, fine grass, leaves, wool, string, rags, newspaper, anything in fact that is most easily obtained, and the nests are often very pretty and dainty structures. The eggs are from three to five in number, of a bluish-white, marked with blackish spots and lines, thickest upon the large end. I have occasionally found in a set one egg entirely unmarked. The House Finches are of a more sociable nature than the majority of our birds, collecting in large numbers in the towns and about dwellings. In Santa Fe, where they are numbered by thousands, their favorite nesting place is upon the beams of the portals, or covered ways, in front of the houses. Here they are looked upon by the fruit growers as fully as great a nuisance as the English Sparrow at the East from their fondness for the flower buds of the peach and other fruit trees. They are very prolific, two and even three broods being raised in a season.

At Santa Fe, too, the Rocky Mountain Bluebird builds its nest about the adobe buildings and corrals. The inner bark of the Cedar enters largely into the composition of their homes, with a lining of soft feathers, gathered from the corral yards. Upon this soft nesting place are laid from four to six eggs of a beautiful light blue, measuring .85x.65.

Entering my favorite cactus patch April 8, I saw a pair of Road-runners leap from one of the bushes. One, a male, fell before my gun, but the other was too swift for me and escaped to the neighboring mesa. On examination of the cactus from which they came, I found a nest containing four pure white eggs, 1.50x1.27. They differed from any eggs that I have ever seen in having a curious outside covering very much like enamel. This had been scratched off in many places, evidently by the claws of the bird coming in contact with the shell. The nest was a rather bulky structure of coarse sticks mingled with grass and roots, lined with a few feathers of the Road-runner. It rested upon the almost horizontal branches of the cactus, some eighteen inches from the ground. Not having the means of carrying the nest home I left it to be taken at some future day. About a fortnight later I fright-

ened another Road-runner from a cactus, only a few rods from the one in which I had found my first nest, and on investigating found a second, also with four eggs, some three feet from the ground. May 13, on going to secure my first nest, I was surprised to find a Road-runner upon it, and a curious spectacle it presented, its head laid flat upon the edge of the nest, its bright yellow eyes regarding me attentively, and its long tail elevated at an angle of some forty-five degrees. For a minute or two I watched the bird, when, at a slight movement on my part, it sprang from the nest, but as it ran across the flat dropped at the discharge of my gun. Returning to my nest my surprise was increased to find it contained five fresh eggs. The bird I had shot, on dissection, proved to be a male, giving evidence that he shares with the female in the duties of incubation. It has been a question with me whether the female in the first instance deprived of her consort, had secured another mate, built and furnished the second nest and when despoiled of this had returned to the first and there laid a third and larger set, or had a second pair, searching for a suitable place in which to build chanced upon the nest, ready for occupancy, and taken possession of it. The former seems to me, taking everything into consideration, to be the more probable solution of the case. I secured during the season several other sets, in one case the nest being built in an old Alder bush on a hillside.

(Conclusion next month)

A Catalogue of the Birds of Kalamazoo County, Mich.

BY DR. MORRIS GIBBS.—PART VIII.

151. [432.] *Accipiter fuscus* (Gmel.) Bp. Sharp-shinned Hawk. With us only a transient, or at least never taken at a time to prove their summering here. My latest date of capture in Spring is April 29th, and my earliest Fall specimen is Sept. 15th. Never common, and so small and unobtrusive as to be rarely taken.

152. [433.] *Astur atricapillus* (Wills.) Bp. American Goshawk. A rare species, taken once in the county in Winter.

153. [436.] *Buteo borealis* (Gm.) Vieill. Red-tailed Hawk. Arrives from Feb. 20th to March 1st, as a rule, but occasionally much earlier. In open seasons this Hawk may be found straggling in this neighborhood any month of Winter. We may consider it as not yet departed for the south when seen in December, and as an early arrival when observed in January. Nests abundantly, usually preferring high lands, always in woods.

154. [439.] *Buteo lineatus* (Gm.) Jard. Red-shouldered Hawk. Called by many writers Winter Falcon, but I do not consider it more hardy than the last named species. Becomes abundant about March 10th. Arrives as early as Feb. 15th frequently, but usually about March 1st. Breeds in lower woods than the Red-tailed Buzzard, and Mr. Syke informs me that he has taken but one set of eggs from a White-oak, although a great many nests are found in Beech trees and other trees in low lands. The Red-shouldered breeds later than the Red-tail.

155. [442.] *Buteo swainsoni* Bonap. Swainson's Hawk. A rare species, and only occasionally shot.

156. [443.] *Buteo pennsylvanicus* (Wils.) Bp. Broad-winged Hawk. A rare Summer resident. Have found only one nest, May 24, 1875. Built in the manner of the other buteos of my acquaintance. Two fresh eggs. This species is but little known here.

157. [447.] *Archibuteo lagopus sancti-johannis* (Gm.) Ridgw. American Rough-legged Hawk. A rare migrant passing through to the north in March and April and returning south in October and November.

158. [451.] *Haliaeetus leucocephalus* (Linn.) Savig. Bald Eagle; Gray Eagle. A rare straggler. Usually observed in the Fall. A mature bird passed south the past July. In no case a regular visitor.

159. [459.] *Ectopistes migratoria* (Linn.) Sw. Passenger Pigeon. Formerly passed us in myriads, Spring and Fall, but now scarcely seen. In fact a flock has not been seen here for some seasons. A stray pair occasionally observed in the woods. The flocks usually appeared about March 20th, and continued for a month or more. Occasionally birds were observed in February. A few pairs always remained to breed in the White-oak woods or Tamarack swamps in our county. Have taken the eggs and have never found more than one in a nest. A pair is occasionally seen now in deep woods during the nesting season. The Pigeons again made their appearance in early September and became very abundant by Oct. 1st. The masses departed for the south by November 1st, but many often remained until Dec. 1st, or even later, in late seasons.

160. [460.] *Zenaidura carolinensis* (Linn.) Bp. Mourning Dove. An abundant resident nearly nine months of the year. Arrives generally about March 15th, but often much earlier. Remains until October 20th, in some numbers. Occasionally observed during all the months of Winter when the season is not severe. Breeds from April

25th to June 15th. A sad toned singer. Well known, and often, unfortunately, shot for the table. A quiet, pleasing bird, fond of feeding in the highways, where it often resorts only to meet its doom.

161. [470a.] *Meleagris gallopavo americana* (Bartr.) Coues. Wild Turkey. Once an abundant resident, but now quite rare. Gunning has so reduced their ranks that it is now an unusual occurrence to hear of a turkey being captured hereabouts. A magnificent game bird, surpassed by none.

162. [473.] *Bonasa umbellus* (Linn.) Steph. Ruffed Grouse. An abundant resident still. Protected by the covers which they frequent, this species cannot be exterminated, as is likely to be the case with the less favored Virginia Partridge. Breeds abundantly in swampy woods as well as in upland groves.

163. [473a.] *Bonasa umbellus umbelloides* (Dougl.) Baird. Gray Ruffed Grouse. It has been known for many years that an occasional "so called Partridge" is of different color. Hearing of this peculiarity from the hunters, I at last secured some specimens, and found them to be of this variety. Rare with us, but much more common to the north. Probably breeds here, but may only straggle so far south.

164. [477.] *Cupidonia cupido* (Linn.) Baird. Prairie Hen. Formerly quite abundant, but the hunters during the last twenty years have rapidly decimated their numbers. Have only found the species breeding once. There are partial prairies in this county, where the birds were formerly common, and the calls and noises peculiar to the species were often heard issuing from the grass and brush.

165. [480.] *Ortyx virginiana* (L.) Bp. Bobwhite; American Quail. Once an abundant resident, but now quite scarce. Only rarely found nesting in the county now. The Ruffed Grouse has a protection in the shelter it seeks in the woods, but the Quail and Prairie Hen must go unless more stringent laws are made in their favor.

166. [487.] *Ardea herodias* Linn. Great Blue Heron. A common species from April 10th to October 1st. Arrives as early as March 23d in early Springs. The last do not leave us till early December. Only seen now with us while feeding around lakes and ponds and streams, the nesting sites lying in other counties. These birds often fly fifty miles to feed. The crop being full the parent returns to its nest in the heronry, where the young are fed on the disgorged fish. Have seen a young callow Heron eighteen inches long swallow a fish over one third its length with

case. The Great Blue Heron formerly nested in our county in abundance, but has been driven away by the fusilade from ambitious gunners, who in their anxiety to bag something, shoot everything. The nests are generally built in gigantic Sycamores, and are not easy of access. One hundred nests is not unusual in one heronry.

167. [489.] *Herodias alba egretta* (Gmel.) Ridgw. American Egret. A rare accidental Summer visitor. Very shy, and not often captured. A few are seen every season.

168. [490.] *Garzetta candidissima* (Gmel.) Bp. Snowy Heron. A rare accidental visitor during June, July and August. Does not breed. Irregular in appearance.

169. [494.] *Butorides virescens* (Linn.) Bp. Green Heron. Not a rare species. Not often found nesting, however. Breeds in small colonies, placing the nests on low bushes and trees. Can not assert as to the arrival or departure of this bird.

170. [497.] *Botaurus lentiginosus* (Montag.) Steph. American Bittern. A common species on our marshes from April 15th to September 20th. Arrives as early as April 5th some seasons, and often remains until October 10th. A peculiar species, known to many persons living in the country as thunder pumper, and also as *plum pudding*, from its peculiar notes. The nests are difficult to discover. Does not build in colonies.

171. [498.] *Ardetta exilis* (Gmel.) Gray. Least Bittern. Not rare at Gull Lake, where about thirty nests have been discovered within the last four years. The species breed in scattered colonies, a few nests being found irregularly situated over a stretch of lake edge marsh eighty rods in length. A very interesting little bird and extremely odd in many of its habits. It appears so stupid at times that it is caught with the hand as it moves through the grass.

172. [509.] *Streptopus interpres* (Linn.) Illig. Turnstone. A rare, irregular migrant, captured only a few times around the edges of the lakes. Taken once as late as May 20th, showing it to be a late migrant in Spring.

173. [513.] *Squatarola helvetica* (Linn.) Cuv. Black-bellied Plover. A rare, irregular species in its migrations. Only a few captures recorded. Once taken as late as October 29th. Usually appears in small flocks on shores of lakes.

174. [514.] *Charadrius dominicus* Mull. American Golden Plover. A common transient in the Autumn, but rarely if ever seen in the vernal migrations. Often seen in large flocks. Have secured a great number at a single shot. Reaches us from the north in early September; remains till late October. Most abundant about September 28th, as a rule.

175. [516.] *Oxyechus vociferus* (Linn.) Reich. Killdeer. An abundant species from March 20th to November 1st. Arrives as early as Feb. 20th open seasons, but generally about March 5th to 10th. Occasionally does not depart until late December, if the shores of the lakes are still unfrozen. Nests abundantly in stony fields, pasture lots and plowed lands. Eggs usually laid in late April, often by April 10th, however.

176. [517.] *Aegialites semipalmatus* Bonap. Semipalmated Plover. A common migrant. Appearing about May 10th from the South, and often remaining in abundance until May 25th. Again appears August 10th and becomes common by the 20th of the month, often remaining until September 20th or later.

177. [525.] *Philotela minor* (Gm.) Gray. American Woodcock. Abundant Summer resident, but not usually so common as formerly. Once bred in numbers in our partially open woods on low grounds, but too much breaking of the law, combined with poorly constructed and too early laws have thinned them badly. Usually appears in early March, but often in late February in open seasons. Has been taken in all the Winter months. Breeds from April 10th to July 10th, and I have seen young birds unable to fly July 20th, which suggests consideration of the present August 1st law. Depart in October usually, but a few often remain until Nov. 15th.

178. [526a.] *Gullinago media wilsoni* (Temm.) Ridgw. Wilson's Snipe. An abundant species two months of the year, from April 10th to May 1st, and from September 10th to October 20th. They first appear in late February some seasons and remain until May 20th, or even later before passing north to breed. The first arrivals from the north are seen as early as July 25th, and the last to leave us are found until Nov. 20th, frequently. The birds are taken throughout the Winter in small numbers during very mild seasons. A few Summer residents are found each year, but the birds have been found breeding but once.

179. [527.] *Macrorhamphus griseus* (Gmel.) Leach. Red-breasted Snipe; Gray Snipe. I have met this species but once. A small flock was observed on May 21st and 22d, 1878, on the edge of a small lake. The flight is peculiar and well marked, and once seen will be remembered. But few captures have occurred. A migrant.

180. [534.] *Actodromas maculata* (Vieill.) Coues. Pectoral Sandpiper; Grass Snipe. Have secured specimens both Spring and Autumn. It is not a rare species, but is decidedly irregular in its appearance. Only transient.

THE
ORNITHOLOGIST

—AND—

OÖLOGIST.

A MONTHLY MAGAZINE OF
NATURAL HISTORY,

ESPECIALLY DEVOTED TO THE STUDY OF

BIRDS.

THEIR NESTS AND EGGS.

DESIGNED AS A MEANS FOR THE INTERCHANGE OF NOTES
AND OBSERVATIONS ON BIRD LIFE.

FRANK B. WEBSTER, Publisher,
PAWTUCKET, R. I.

Editor's Notes.

We supplement our articles on Taxidermy by a short series on Practical Entomology, for which we are indebted to Messrs. Wright and Bates of Boston. The first of these articles is given this month.

Among the numerous Magazines appearing for the first time this year, we have been much pleased with "*The Museum*," which we hoped would secure a permanent place. It is therefore with some regret that we announce, as requested, that it has been merged into "*The American Antiquarian*," a new department of which to be called "*The Museum*," especially designed for collectors, will be in charge of the late editor.

We notice in "*Science*" that what is left of Audubon's collection of birds has been presented to Amherst College, Mass. Many of the skins, of which there were about 600, were unfit for mounting, but Professor Ward has prepared about 100 for exhibition in the College Museum.

Gulls, Terns and Grebes at Emporia,
Kansas.

BY V. L. KELLOGG.

To the casual reader, Kansas would not seem to be a very propitious place for either Gulls, Terns or Grebes. Mark Twain, in "Roughing It," mentions a lake in California, 100 miles from

the sea-shore, where he is greatly astonished at finding immense numbers of Gulls, and to express his astonishment, says that he would as soon expect to find them in Kansas.

Yet at certain times of every year one may see them here in abundance. I have observed at this place two species of Gulls, the Ring-billed Gull (*Larus delawarensis*) and Franklin's Rosy Gull (*Larus franklini*), though other kinds have been found in the State. This Spring, on April 30th, I saw large flocks of Franklin's Rosy and a few Ring-billed, and flocks of both were seen frequently during the ensuing month.

I have found here two varieties of Terns, viz: Forster's (*Sterna forsteri*), and the Black Tern (*Hydrochelidon lariformis surinamensis*). I have seen but few Forster's, but the Black Terns are abundant. In the Spring they arrive about the first of May and stay until the end of the month. In the Fall they are seen quite early; in 1884, the first one being seen on August 19th. While here they are to be found in large numbers flying about in flocks over the water, feeding, and continually uttering a rather harsh and shrill cry, but not very loud, however.

Of Grebes I have taken two species here, the American Eared (*Dytes nigricolis californicus*) and the Thick-billed (*Podilymbus podiceps*) and a Single Horned Grebe (*Dytes auritus*) was shot here in 1882. The Eared are not very common and are found in the Spring, while just the opposite is true of the Thick-billed, they being quite common and found in the Fall. Again, the Eared are seen singly and the Thick-billed are found in flocks of from five to thirty. They are very loth to leave the water when alarmed, preferring to trust to their diving abilities (which, it must be said, are of a high order,) rather than to their power of wing. There is a specimen of the Great Northern Diver (*Colymbus torquatus*) in the High School collection at this place, which was taken near town, but it is the only specimen of its kind ever found here to my knowledge.

ALBINOS.—A perfectly pure albino *Petrochelidon lunifrons* was seen to-day in possession of a taxidermist in this city. The bird was shot here a day or two ago and sent to be mounted. Unfortunately it was shot with coarse shot and somewhat mutilated, but otherwise it is perfect, and one can hardly hope to see a finer specimen.

An albino Red-winged Blackbird, (*Agelaius phoeniceus*), has also been received here. The bird is pure white with the exception of the red patches on the wing, which are normal, and a very slight reddish tinge on the head.—A. W. Anthony, Denver, Col.

Practical Taxidermy.

BY FRANK B. WEBSTER.

CHAPTER II.—WORK ROOM AND TOOLS.

The work room should be as far away as possible from the general living rooms of the house, for three reasons: First, the necessary use of poison. Second, on account of the unpleasant odors which follow the dissecting of specimens. [Those who work over them soon become so accustomed that they are entirely unnoticed]. And thirdly, that the room may be locked, to keep intruders out, especially when no one is present to attend to "hands off."

It will be impossible for the majority of amateurs to have a regular workshop, and the next best thing is a room, perhaps on the second floor, opening into the back hall. The most simple work bench is made by taking an ordinary stand or small table and having a heavy top made for it of, say two-inch pine plank. A table two feet by four feet is convenient for ordinary work. In addition take a piece of joist, says two by four inches, four feet long, make an X of same stock the two pieces being about eighteen inches, fasten this to one end of the joist, and a cross piece to the other. You will now have a stand the shape of a letter T, with the bottom like the letter X. This will be found a very useful stand to use temporarily while mounting large birds like Eagles, Peacocks, &c. A large case, say seven feet high, six feet long, eighteen inches deep, made of pine, painted white inside, made so as to be readily taken to pieces, will serve to hold specimens when drying and keep them from dust, &c. A cabinet or set of drawers for holding tools, can generally be obtained at a low price from any retail store. Empty thread cabinets do very well.

I am now supposed to invite you into a room filled out as above. We open the cabinet drawer, in which are a number of tools, many perhaps, of a similar appearance. I believe in good tools and plenty of them. If I hear of anything new I get it. There are yet to be many improvements made, and if I can gain by them I shall do so with as much enthusiasm as the surgeon, dentist, and machinist. A well-known Taxidermist recently remarked to me, "I can stuff birds with nothing but wire, tow and cutters." With due respect to him, I remarked that I supposed he could discard knives and forks from his table, and many other modern conveniences. Nickel plated tools for me, if you please. I will only describe the tools that I consider necessary, and

leave it to you to decide how many sizes of each you wish.

After the following description I shall only mention them by name in order to make the portion devoted to actual work as simple as possible.

Fig. 1. Scissor-handled Stuffers. Commonly called Stuffers; for placing tow or other stuffing in head and neck of all birds larger than a Blue-bird. Also smaller ones if you desire. Length, 9 to 12 inches.

Fig. 2. Spring Stuffing Forceps. Commonly called Spring Stuffers. Better adapted for smaller birds; same purpose as the scissor-handled. Length, 6½ inches.

Fig. 3. Ebony-handled Scalpel, for skinning; suitable for small work.

Fig. 4. Cartilage Knife. A heavy steel scalpel, handle and blade all one piece. Much stronger than the ebony-handled; for heavy work. [In using any scalpel avoid prying, as this will break the best made instrument].

Fig. 5. Brain Spoon. For cleaning out the brain cavity. The latest improvement at this writing is a short curved-wire point at the end of handle, designed to use in removing eyes; also to use in putting in artificial eyes.

Fig. 6. Surgeon's Scissors. Short blade, extra strong.

Fig. 7. Shears.

Fig. 8. Curved Scissors.

Fig. 9. Elbowed Scissors.

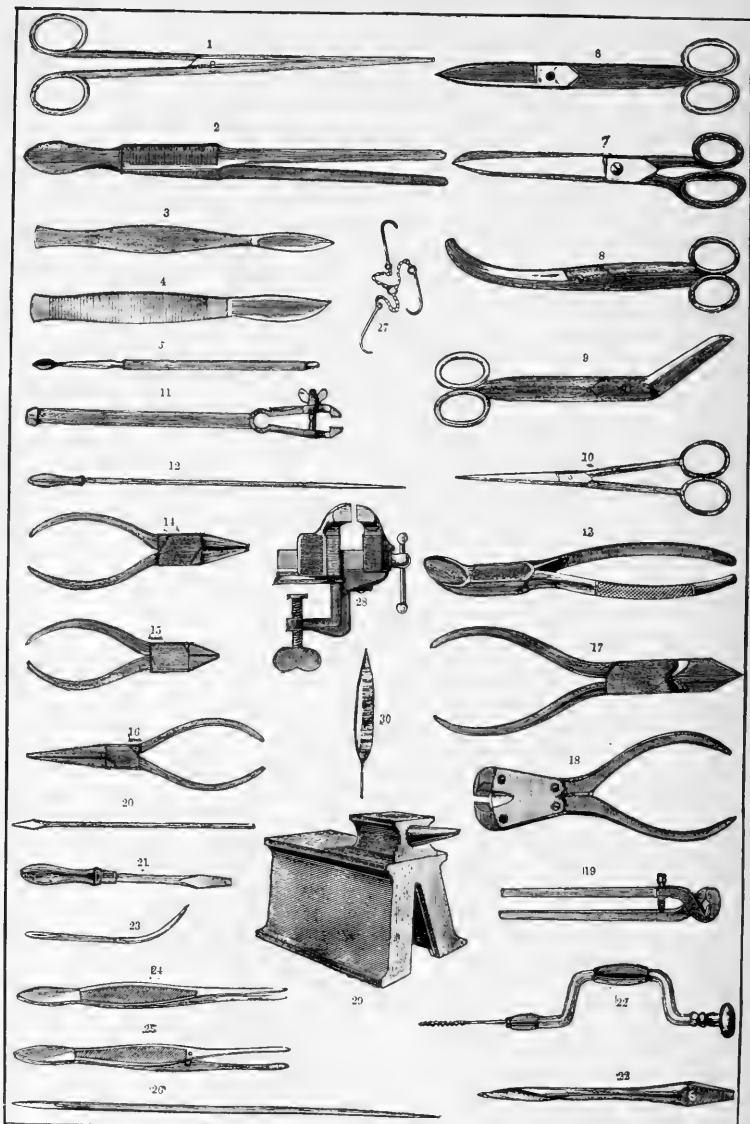
Fig. 10. Fine Scissors.

These all have their special use, which will be readily found when once at work. There is one use to which they should *not* be put, viz., bone cutting, which will spoil the best scissors ever made, not only by spoiling the edge, but by bending them at the shank so that the blades will not shut.

Fig. 11. Hand or Pin Vise, for holding long needle when making hole in legs of birds, for holding wire when spreading tail, and a temporary handle, useful in many ways.

Fig. 12. Leg Drill. A steel wire sharpened, with a wood handle, to use in making a hole in the legs of large birds, especially in dried skins. Annealed wire, when right for use, will be found to bend so easily that it is almost impossible in some cases to force it through the legs. Much time and vexation is saved by using the drill first. In very small birds this is not necessary.

Fig. 13. Bone Cutters, for cutting bones. They are made in two ways, straight edge and curved edge. The last to meet the demands of Ichthy-Taxidermists. The curved blade being used in cleaning the fins and other small bones



found inside of skins. If you cannot afford them use your large wire cutters.

Fig. 14. Round-nosed Plier.

Fig. 15. Flat-nosed Plier. For bending wire. The sizes run from 3 to 9 inches, 5-inch being medium and 7-inch large. The 9-inch is only required for the heaviest work.

Fig. 16. Long-nosed Pliers. I use a 4-inch plier of this style to hold small birds when skinning.

Fig. 17. Side Wire Cutters. Better than the end cutters for some work. They open wider, and with the point wire can be cut in places that cannot be reached with the end cutters. Sizes 4, 5 and 6 inch. These are only fit to use on small wire, not larger than No. 17.

Fig. 18. Hall Double-lever Wire Cutters. Sizes 5 and 7-inch. Very strong cutters.

Fig. 19. Extra-heavy Cutters. No. 4 about right for ordinary heavy work.

In using any cutter, cut square, do not twist on the wire, as a broken jaw will surely follow. I seldom break mine, but I have seen parties who would break a pair every day in the week. There is no excuse for it.

Fig. 20. Probe. To carry when collecting to force cotton into the beak and throat of birds.

Fig. 21. Screw Driver. About three sizes. Small, medium and large. This cut illustrates a style used by jewelers, which I prefer.

Fig. 22. Bit-brace and Bit. The bits can be had all sizes, from 1-16 of an inch up to 1 inch. I would advise one of each size from the smallest up to one that will make a hole about as large as the diameter of a common lead pencil. You can then bore holes for all sizes of wire.

Fig. 23. Curved Needle; also straight. They are regular surgeon's needles. The curved one for sewing up bird skins and the other for animals. (Mammals.)

Fig. 24. Spring Forceps. Very fine points for smoothing feathers. Formerly feathers were smoothed by using a knitting needle and the thumb. But these forceps are a great improvement for picking up feathers, when making up pieces, and other things. Length, 5 inches.

Fig. 25. Spring Forceps. Same style as 24, but with blunter points. I use them sometimes in stuffing very small birds instead of spring stuffers, also for putting putty in the eye holes before putting in eyes.

Fig. 26. Long Needles—8 to 12 inches. To be used in connection with pin vice.

Fig. 27. Hook and Chain. Used by many for hanging up body when partially skinned.

Fig. 28. Bench Vise. No work bench is complete without it.

Fig. 29. Anvil—on which to straighten heavy wires.

Fig. 30. Cop. This is a fine single thread. To use it, if possible obtain an old-fashioned shuttle. The next best way is to make a skewer say about eight inches long, one end the size of a pencil and the other about one-eighth of an inch, run this carefully through the cop, commencing at the butt or end that has the paper cop, fasten the large end in a small wooden base, then take a piece of wire twelve inches long, fasten one end in same base as cop, about two inches from it; now run the wire up parallel with the cop, about two inches higher than the skewer, bend it and make a loop in the end, having the loop directly over the top of the skewer. Now pass the thread up through the loop and you can unwind it from any direction without strain on the thread. This thread is used in winding down the feathers.

Practical Entomology.

BY WRIGHT AND BATES, 73 HANOVER-ST., BOSTON.

It is our purpose to set forth, in as plain language as possible, the method which we have found the easiest and most profitable. To explain the *minutiae* of the business would require volumes, but we will try to explain how the actual work should be done to produce the best results.

In order to have a good collection, it is very necessary to be a good collector, and in order to secure this end it is necessary to have good apparatus to collect with. The outfit consists of:

1st. Nets. Of these, three are necessary. A frame can be made of a piece of brass wire, bent in a circle, with the ends at right angles to the hoop, and driven into the end of the handle. But it is often convenient to have a net which can be taken apart and carried in the pocket; such a one can be made by fastening a nut, or core, in which a hole with screw threads has been drilled, into a piece of brass tube, the other end of which forms a socket for the introduction of a handle. Then cut a square hole through the head of a large headed screw, just at the shoulder, and fit it to the core. The hoop is a piece of light, flat steel with a spring temper. When used the ends of the hoop are passed through the square hole, the handle screwed up and the net is complete. The handle should be of some light wood, four or five feet long, tapering toward the end where it fits the frame. One net should be of fine netting (white or green) deep enough to fold completely over the hoop (about twenty inches), conical in shape and bound around the top with a strip of cotton cloth to pass the hoop through.

A second net of cheese cloth or other light material, made in the same shape, is for sweeping the grass and bushes for beetles and larvæ. The same frame will answer for both nets.

A third net made of coarse millinet or grass cloth, and shaped something like a scoop, with one flat side, will be needed for capturing aquatic insects, larvæ, &c.

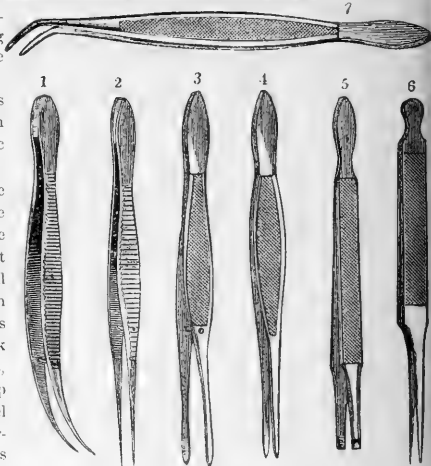
2d. Killing Bottles: Many methods have been given for killing insects after capture, some use *ether*, *chloroform* or *benzine*, others advocate pinching the thorax while in the net, but the best method we have found is to use a wide-mouthed bottle with a few pieces of Cyanide of Potassium in the bottom, and over all pour plaster of Paris mixed with water to the consistency of thick cream, let the bottle stand open for a few hours, pouring off the superfluous water, then keep tightly corked except when in actual use. Label Poison. Bottles specially prepared for this purpose can be obtained of any dealer, and it is better to buy them than run any risk in preparing. Two bottles wide enough to hold the largest of the Lepidoptera, say four inches deep with a mouth $1\frac{3}{4}$ inches in diameter, and a smaller one, about the size of a morphine bottle, for the smaller and more delicate ones. Also a wide-mouthed bottle containing alcohol (60 per cent) for beetles, spiders, larvæ, &c. A few small vials and pill boxes for insects which it is desirable to keep separate from the rest by reason of their having been found in some unexpected locality or that are wished for special examination at leisure.

Have a small bottle of ether or chloroform with a camel's hair brush attached to the cork, for killing anything which is too large to put in the bottle.

3d. Collecting Box. A box about $3\frac{1}{2} \times 7$ inches, lined with cork will usually be found sufficient; but it is well to have one larger, say $8 \times 4 \times 11$ inches, with shoulder strap, which can be taken on trips which are likely to be long or unusually remunerative. In either case one end should contain a compartment with independent cover for holding prepared insects.



A pair of forceps, which can be selected from the following styles, according to taste, and as experience teaches. We have found Nos. 1, 6 and 7 to be the best in our hands. These are almost indispensable for handling small moths, minute beetles, spiders, bees and wasps.



A trowel or strong knife, and in Winter a hatchet for digging up larvæ, pupæ and subterranean beetles, tearing off bark from dead trees, and removing the homes of the bees, wasps, &c., for examination or preservation.

A small pocket magnifying glass (see cut), a few triangular envelopes for packing away Lepidoptera which are to be used for exchange or are to be transported to any distance. A good stock of pins of various sizes. A small satchel, with strap for swinging from the shoulder, for holding various things, such as lunch, extra net, vials, a box for larvæ, with their food plant, which are destined to be raised, &c., completes the outfit.



The decision as to the best thing to wear on a collecting trip should be governed mainly by the taste of the wearer. To one who does not fear wet feet, we would say by all means wear shoes, but wet feet are dangerous to some and uncomfortable to all, so that it is well to wear heavy leather or rubber boots wherever the ground is likely to be wet. Also a loose sack coat furnished with as many pockets as place can be found for. There cannot be too many.

Now as to the actual work of collecting. There is no time, day or night, Summer or Winter, when the entomologist need be idle, for insects are about at all hours in warm weather, and those things which can be taken at night can be found at no other time. In the Summer the woods and

fields are filled with insect life and in the Winter many species are to be found under the bark of dead trees, in rotten wood, under the stones, in the moss, in the crevices of the bark of live trees, and the careful seeker will find many pupæ hanging to the trees, under the stones, and on the old fences. There is no particular place to look, you must look every where, but perhaps the localities must prolific in insect life are gardens and farms, the borders of woods, low marshy places, and the banks of streams. As "eternal vigilance is the price of safety" so it is the price of a good collection. Above all things, keep a notebook of every incident and particular of what you take, its place of capture, date, comparative rarity, and if unknown, a description of it and its habits; if a larvæ, note its habits, its food plant, and do not fail to keep it and note every change until it transforms; keep the notes very full and you will be surprised to find how much valuable information you have collected in one season. The note book of one careful naturalist is worth more than all the books of instruction in the world.

In collecting Lepidoptera, it is preferable to start as near day break as possible, for then many night flies are resting before crawling away for the day, and all are sluggish and can be easily taken. But as the sun draws higher the hum of insects increases, the butterflies become lively, new ones come out from their hiding places, where they have spent the night, and plenty of work lies close at hand. Now, be cautious, do not hurry, do not run, it is of little use to chase a butterfly, you will only get out of breath, and have your labor for your pains, wait until he settles on some flower or on the grass, strike quickly, but lightly, with a dexterous twist throw the bottom of the net in a fold over the hoop and you have him; then, if he is small, put the open mouth of the bottle over him as he comes up the side of the net, confine it with the hand and put in the cork. If he is large or vigorous it is often best to put the open bottle into the net and place it over him as he lies confined in the bottom of the net, loosen the net a little around him and he will fly in. Do not put too many into the bottle at once, not over six or eight, for they will batter each other, then put the bottle in the pocket and take another, by the time that is full the others will be dead and may be taken out, then either fold the wings together over the back and place him in an envelope or pin him and stick in the box.

In pinning a butterfly or moth, take him by the thorax, under the wings, and slide a pin downward through the thorax inclining it slightly backward. Coleoptera should be pinned through

the right elytron. Hemiptera through the scutellum. Watch the flowers, the grass, the leaves, and even on the bark of the trees, where some of the rarest of the moths alight, take plenty of time, and you will soon become sufficiently expert to enable you to take a goodly collection in a short time. Do not stay out too long at a time, but find the means to go out at different times of the day. A very cloudy day is a poor one for the entomologist.

In collecting Coleoptera and Hemiptera in warm weather many may be taken in the net while flying, but more will be found by sweeping and carefully examining the grass, flowers and leaves, many will also be found under stones, dung, and in and about dead animals and carrion, others will be seen swimming in the water or grovelling in the mud beneath it.

Many species of insects rare in most localities, have some place where they are very plentiful. On discovering such a place, it is well to lay in a stock for future use, for such an opportunity may never again be had.

When you get home, do not immediately set about taking care of the insects you have captured, lay them aside, drop all thoughts of them, sit down to a good square meal, and above all get rested before going to work on them.

Bird Visitors at a Florida Light House.

BY D. D. S., OSWEGO, N. Y.

Last Spring I spent about two months in the South collecting specimens. While in Warrington, Fla., I became acquainted with Mr. Samuel Lawrence, the keeper of the light house near there.

Learning my business, he told me that on dark, drizzly nights myriads of small birds, and some times larger ones, congregated about the lantern, fluttering against the glass or resting on the upper balcony, sometimes striking the glass or iron work with such force as to kill themselves. The light is of the first order, 210 feet from the sea level to its focal plane and lights the entire horizon. The tower is on the main land on a nearly straight piece of beach and about a mile inside the entrance of Pensacola Bay. The country is mostly level, with many swampy places and covered with a growth of Pines and scrubby Oaks.

The night of March 22d being favorable, I accepted the keeper's invitation to pass the night in the lantern with him, and was well rewarded. During the first part of the night only five or six birds came within reach. Four of these were taken—two Yellow-throated and two White-eyed

Vireos, also a Carolina Rail that had killed itself the night before. About 1 o'clock the birds began to come thick and fast. The air seemed to be filled with small birds, flitting about catching insects, their bright plumage flashing in the light like the rapid passing of lighted candles, and presenting a strange appearance to me as I stood on the lower balcony looking out upon the gloomy, ever rolling ocean. These birds were the above named Vireos, Blue Yellow-backed and *male* Hooded and Prothonotary Warblers. As to sex, the Vireos were about evenly divided, but two *males* were seen of Blue Yellow-backs while not a single *female* of the other two Warblers was seen. From 1 o'clock till morning I took from the glass or upper balcony 16 Warblers, 1 Black-and-white Creeper, 6 Vireos, 2 Little Black and 4 Carolina Rails, 1 Purple Martin, 1 Least Bittern; also 1 Carolina Grebe from the ground below where it was lying dead. I also saw a Clapper Rail, Meadow Lark, Little White Egret and Great Blue Heron, but they did not alight within my reach. The morning of the 24th, the keeper's son brought to me five Blue-winged Teal and one Red-eyed Vireo that had killed themselves the previous night. One of the ducks struck with such force as to shiver a pane of glass one fourth of an inch thick. The night of the 26th again being favorable I went to the light house and captured a number of birds, but did not get anything different from the first night, excepting one Summer Red-bird.

The light keeper informed me that one stormy night four years ago his assistant captured four young Flamingoes alive and sold them to an army officer stationed near by.

While at this same village I noted the following arrivals:

- March 23, Ruby-throated Hummer.
- " 25, Summer Red-bird, ♂.
- " 26, Kingbird.
- " 28, Great Crested Flycatcher.
- " 19, Hooded Warbler.
- " 21, Prothonotary Warbler.
- April 3, Indigo Bunting.
- Chimney Swift.
- Blue-gray Gnatcatcher.

DAVIES' EGG CHECK LIST.—We are informed that a new and revised edition of this useful Handbook is in active preparation. It is to be illustrated by Dr. T. Jasper, and we are promised that it will be "complete, giving accurate descriptions of the nest and eggs of all North American birds known to breed." It may be looked for before the end of October.

The Red-breasted Merganser.

BY P. Q. KEEGAN, LL. D.

(Hardwicke's Science-Gossip.)

About the period of the Autumnal equinox, at the time when the winds, let loose from their Summer-caves, sweep with wild and fitful fury over land and sea, then away among the quiet recesses of some sheltered bay there may frequently be discerned a most beautiful sea-bird. Arrayed in an apparel of the most gaudy and varied hues, with neck and head and movement correspondingly beautiful and graceful, the appearance and deportment of this bird may challenge universal admiration. His accomplishments, too, are by no means to be despised. His sight is of the sharpest, most far-reaching description, his vigilance is indefatigable, and let but pressing danger be apprehended, and lo! he dives beneath the water with marvelous promptitude and dexterity. Where is the sea-fowler that can overmatch the astuteness and agility of this beautiful bird? The gun is presented, and well and truly pointed; the trigger is pulled, but ere the comparatively sluggish shot can reach its mark, the creature has vanished—disappeared, as if by magic, to nestle in the chambers of the deep, completely out of sight and in security.

During the dry and parching Summer season, the Red-breasted Merganser (for that is the name of this beautiful sea-bird) sojourns for the most part amid the desolate solitudes of the Arctic regions. The cares and anxieties attendant upon the breeding duties harass him then; but let no one suppose that, at this time, his lot is unhappy and difficult to bear. Let no one think that there he encounters no warmth or geniality of climate, no green vegetation, no sunlit skies or gleaming sea. We know that there is a broad space around the pole—a "thrilling region of thick ribbed ice" where, during certain months in Summer, the sun perpetually shines, his light never fades, never gives way to night, though sometimes it is seriously intercepted by fog, which, however, chiefly occurs seaward; he careers all day and night in the heavens, and thereby concentrates such an intensity of heat upon certain sheltered portions of the land, that the temperature thereof frequently surpasses that of the tropics. Captain Scoresby during the course of his survey of the eastern coast of Greenland, having landed one day on that desolate shore, found the temperature of a certain spot amongst the rocks to be 70°, and he describes the effects thereof as being particularly relaxing. A lavish and widespread vegetation too, decorates these northern shores from June till about September, and furnishes ample opportunity for the prosecution of breeding undertakings on the part of seabirds. In order, however, to illustrate the fact, that birds can nidify at a comparatively low temperature, we may mention, that, on the 21st of June, 1853, an Ivory Gull (*Larus eburneus*) was found sitting upon its eggs in a small island to the north of Melville Sound (lat. 76°), when the thermometer indicated only 35° of heat.

As soon as the breeding duties of our bird have terminated, and the new-fledged brood can provide for themselves, and when the terrible rigors of the Arctic Winter—the sleet charged blasts, the blighting fogs, the destruction of vegetation, the soul-depressing silence and frigidity of all things—commence to be experienced, then he abandons his Summer seat, and traveling southwards, settles in more genial latitudes. With strong, rapid unflagging flight, he poises in the air over the dreary shores of Greenland, Newfoundland, or Hudson's Bay, and bidding them farewell, advances briskly for days and days till he lands securely in Shetland, in Orkney, in Sutherland, or the Hebrides, &c., and there, in conjunction with his "co-mates and brothers in exile," forthwith commences his Winter campaign of diving, fishing, glutting, &c.

Unlike the great Black-backed Gull, the beauteous Northern Diver, the Fulmar Petrel, &c., the bird now under review is of a decidedly social disposition, and, on that account, is more frequently to be seen in flocks than in a solitary state. Its voracity is excessive and generally known; and we need not wonder, therefore, that its principal occupation consists in the pursuit, capture and consumption of various species of fish, especially sand-eels, for which it manifests an especial relish. The following is the method of procedure.

The bird swims about gracefully upon the surface of the sea for some little time, occasionally poking its head and neck beneath the water, as if searching about for some delicate morsel, then, suddenly elevating its body, and plunging straight ahead, it instantly disappears from view. Its comrades, suspecting that some sport is to be had below, follow suit; so that the entire flock seems to vanish, as if by magic. After traversing the watery regions with considerable swiftness and dexterity (using the wings as well as the webbed feet), the Merganser appears once more above the surface, bearing a fish in its mouth, and looking as lively as ever. The booty is soon disposed of down "red lane," whereupon the bird drinks a little water by way of condiment or digestive, or perhaps to wash the meal down more thoroughly; and then gleefully flapping its wings, it appears eminently satisfied with the entire proceeding. To inspect a pair or more of these birds fishing in some shallow lake left amid some far off waste of sand by the receded tide, is an extremely interesting occupation. Such graceful movements, such displays of agility, such attractive forms and coloring cannot be discerned every day within the circle of human intercourse. He who, towards the Autumn or mid-winter, occasionally devotes an hour or so to the study and contemplation of sea-bird habits and deportment, will assuredly not repent of the proceeding. The ever-varied and beautiful tints and shades of ocean, the bleakness and desolation of open wastes of beach-sand, will touch his heart, and impress grateful ideas on his mind that will haunt him for years.

The lavish prodigality of life-energy expended by the Red-breasted Merganser, the pungent stimulating character of the regions which it inhabits during the most important period of its existence, conspire with extensively endowed digestive powers to render it excessively voracious. The mouth is provided with a number of fine, conical, saw-like lamellæ or teeth, viz., about sixty in the upper jaw and about thirty-five in the lower. The œsophagus also is specially large and dilatable, so that ample provision is thuswise made for the capture, steadfast seizure, and the storing up of a liberal amount of edible matter. Sand eels are especially delectable to the gustatory organs of the bird. Away from a desolate waste of sandy shore, damp, pool-bespread, and wreck-strewn, the bird establishes itself, and commences the operations necessary to the procurement of victuals. It perseveringly digs its sharp beak into the retreats of the sand-eel, until a desiderated morsel is grasped. This species of eel is of a beautiful silvery color—a very delicate fish about five or six inches long; so that the Merganser in whose body it is recorded no fewer than twenty-four of these were found, had managed, we should say, to obtain a pretty good dinner of it!

Hovering on the confines of the comparatively clumsy Anatide, the Mergansers seem to have borrowed some portion of their marvellous beauty and gracefulness from the allied family of the Coymbide. The diving powers of our bird are remarkable. It is shy and wary, with sharp ears, and exceedingly acute and far-ranging vision, and so completely, so adequately and promptly can its bodily movements be adjusted to the dictates or promptings furnished by the senses—so intimately associated and dependent are

its motor and sensor nerves—that when a sea-fowler fires off his gun, the bird dives with incredible dexterity, disappearing from view ere the shot can reach the now deserted seat. The predilection of the bird for red color, however, is the snare which frequently proves fatal. It is recorded, that this Merganser exhibits a weakness for the fascinations of this color, and that the Swedish hunters, aware of this fact, frequently take advantage of it, and by wearing red clothes become enabled to approach much nearer, so as to direct their fire with more sure and deadly effect.

The wings of the Red-breasted Merganser are only of moderate length (not extending to the tail),—and of moderate breadth. The body, like that of the Divers (*Colymbidae*), is comparatively heavy, weighing in an ordinary specimen about two pounds. Yet, notwithstanding the unfavorable circumstance, the flight of the bird is undoubtedly strong, swift, and remarkably well sustained.

Now if we compare these facts with those furnished by an inspection of the flying apparatus, of, say the Great Black-backed Gull (*Larus marinus*), we shall perhaps be able to glean some grains of ornithological truth. Have you ever observed the mighty sweep of this Gull's wings? They measure five feet across, and the weight of the bird itself is, on the average, only about three or four pounds. Now, if we compare these various weights and measures with those of the body and wings of the Red-breasted Merganser, the important truth may flash upon us, that the greater the weight of the bird, the less proportionally is the spread of the wing necessary to sustain its body in the air. In the consideration of the flying capabilities of a bird, let us never forget the fact that, in heavy birds the motion of the wings in the act of flying is comparatively slow, while in light birds it is comparatively swift. The former circumstance is illustrated in the dilatory, lazy-paced, ungainly flying of the Crane, the Heron, &c., the latter in the marvellous agility of wing displayed by the sylph-like Petrels, Skuas, Terns, &c. It seems, too, to be an indisputable fact, that the larger and weightier birds, when once fairly launched into the air, can sustain and propel themselves with a much less expenditure of animal energy than that required from the smaller and less ponderous among the feathered tribes. Those naturalists who have marvelled at the apparently excessive muscular exertion involved in the flight of birds, have, when the facts have been more thoroughly examined and elucidated, become sensible that the strength of these aerial creatures is not so grievously taxed as they formerly supposed.

The Red-breasted Merganser, ever beautiful and accomplished, and not exhibiting any very marked or reprehensible meddling, domineering, piratical or other objectionable proclivities, may be fairly ranged as regards "social position" on the same level with the "aristocratic" Divers. Inspect and feel the soft, close, blended, velvety plumage of this latter group of sea birds, and compare it with the hair of the thorough-bred horse, or even (if such be allowed) with the locks of the well-bred gentleman, and then declare if, as respects this important constituent of their external aspect, they are not entitled "to flourish in any society." To speculate upon the social position or upon the respectable appearance of birds, may appear ridiculous; but my observations and studies in Natural History have been valueless, if roughness or smoothness, coarseness or refinement in the external integuments, in the hair, nails and other appendages of animals, does not stand as a sign and index, a mark and register of something more recondite and fundamental, of something intimately connected with the most elementary organic structures, and with the ultimate fountains of animal energy.

The following account of the specific characteristics of the male Red-breasted Merganser (*Mergus serrator*) cannot

be regarded as complete:—The head is decorated with a long loose crest of a glossy dark green color; the upper mandible is reddish-brown, the lower one is of an orange tint; a few rather large feathers, of a pure white color margined with black, crop out from each side of the breast, and fold over the wings when these are at rest; the upper breast is reddish-brown, the lower is pure white, but when the bird is just recently killed, there is thereabouts a beautiful salmon-color tint; the outside of the tarsus and toes, and the webs are of a purplish shade, while the claws are of a light greyish-brown. The total length of the bird is about twenty-one inches. As is the case with almost all the Anatidae, a most important specific indication is afforded by the appearance of the trachea. In the Red-breasted Merganser, the structure and arrangement of this organ are so singular as to merit a detailed description. Two inches from the mouth, it swells out to four times its diameter, an enlargement which it maintains for the space of two inches and a half; it then continues as at first for another couple of inches, when it becomes flattened for the same distance further; it finally appears under the form of a bony labyrinth which measures two inches long, by one and a half in breadth, and which is covered with a yellowish skin-like parchment.

This species nidifies from about March till May or June. Greenland, Newfoundland, and the shores of Hudson's Bay are the localities which have been notified as its special haunts during the breeding season. But away along the margins and among the islands of the more lonely and secluded Highland lochs, the nest of this bird has been frequently discovered. It is said to be commonly situated amongst brushwood, and at a few yards from the water, and to be warmly constructed with the down taken from the bird's own body.

Brief Notes.

BAIRD'S SANDPIPER AT HAMILTON, ONT.—Although very few of the Plovers or Sandpipers raise their young in this neighborhood, the Killdeer Plover and the Spotted and Solitary Sandpipers being all we can name as Summer residents, yet as early as the 15th of August, should it blow from the northeast with a slightly lowering temperature, groups composed of Sanderlings, Least and Semipalmated Sandpipers with a few Turnstones, may be seen boring into the muddy flats or following the receding waves along the sandy shores of the bay, in search of their favorite fare. On the 25th ult, while examining one of these mixed flocks, I noticed one individual whose cry was different from that of the others; it had also a peculiar zig-zag, Snipe-like flight, often rising to a considerable height and suddenly taking a header toward the ground again. Acting on Dr. Coues' advice of shooting an unknown bird at sight, I did so as soon as I could, and had the satisfaction of picking up a Baird's Sandpiper, the first found in Ontario so far as I am aware. In markings it resembles both the Least and Pectoral Sandpipers, but as stated in "New England Bird Life," is in size intermediate between the two—a distinction by which it is readily identified.—*K. C. McIlraith, Hamilton, Ont.*

NOTES FROM BELCHERTOWN, MASS.—There are quite a number in this vicinity who are interested in the study of Ornithology. I commenced making my collection January 1st, '84, and have since then collected and mounted eighty-one species of birds, all of which I have taken within six miles of home. I shot a splendid Goshawk in mature plumage on Jan. 25th, '84. This year I have added a number of good specimens, a male Hooded Merganser Duck, April 11th, '85, one nice Blue Heron, one Long-eared Owl. My last adventure was Aug. 21st, '85, when I

drove six miles before daylight to a sheet of water which covers about five hundred acres, where I had observed Eagles when driving past. After hitching my horse I walked about a mile to a point of land where stand three large Maple trees. Under one of these I concealed myself and waited for daybreak and the Eagles, if there were any. I did not wait in vain, for soon after daybreak a pair of Bald Eagles came sailing over the water and alighted on one of the trees, so close together that I brought them both down at one shot. Length of male 30 inches; expanse of wings, 6 feet; weight, 7 pounds. Length of female, 41 inches; expanse of wings, 7 feet; weight, 7 pounds. They are now in my cabinet.—*G. L. Kent.*

NOTES FROM OSWEGO, N. Y.—June 7. I found near here a nest of Hooded Warbler containing three fresh eggs. It was in a wet swamp, one foot from the ground, in a small bunch of sprouts that grew from the root of a small Water Beech. I have never seen but four or five of these Warblers here in the breeding season.

June 7th, I took a nest and three eggs of the Black and White Creeper. The nest was under the roof of a very large Hemlock, entirely out of sight. The entrance to the nest was a small mouse hole through the decayed leaves. It was only by a chance step that I flushed the parent bird. I waited about five minutes and she returned to the nest and I caught her in my hand. I have collected about here every year since '73, excepting 1880, '81, '82 and '83, and never before have seen this bird at this time of year, although it is a very common migrant.—*D. D. S.*

RARE BIRDS TAKEN AT CAPE COD.—An adult female Stilt Sandpiper (*Micropalama himantopus*), in partly Fall plumage, was shot at Monomoy Island, in company with some Sanderlings, Aug. 5th, 1885. It was shot by a gunner who gave it to me, and although it was pretty well shot up, it made a fair skin.

An American Oystercatcher (*Haematopus palliatus*), was shot by Alonzo Nye, the veteran gunner, during the latter part of April, 1885, near Monomoy Island.—*J. C. Cahoon.*

NOTES.—Dr. Edwards of Hyde Park, Mass., reports that while visiting a patient at Readville, he noticed a child being attacked by a pair of Kingbirds. He called the father's attention who ran out, and although armed with a stick, was so vigorously attacked in turn that he was forced to pick up the child and retreat, leaving the birds masters of the situation.

A large Rattlesnake was killed at Readville, yesterday. They are not uncommon in that locality.

A large flight of Short-tail Tern passed Chatham, Mass., during the past week.—*F. E. W., Sept. 10, 1885.*

MR. S. FRANK DEXTER reports from Chatham, Mass.: This year there was no regular flight of Plover, as noticed annually for four years past. From Aug. 25th to Sept. 12th, they passed in small bunches. The flight of Bay Birds this season has also been very limited. Weather very warm.

THE CERULEAN WARBLER lately mentioned, has been added to the collection of Dr. Wm. H. Fox of Hollis, N. H.

CORRESPONDENCE.

J. L. Taylor, Wis.—The skin you send is that of the Clay Colored Sparrow [212]. We regret that the eggs were broken in transit.

F. W. K., Bridgewater, Mass.—The Cowbird certainly has an odd appearance. We consider it merely the changing of plumage from the young to that of the adult.

Received.—*E. Kell Bacon; G. H. R.*

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No. 11.

Mississippi Valley Migration.

SPRING OF 1883.—Continued.

BY PROF. W. W. COOKE, BURLINGTON, VT.

WARBLING VIREO, (*Vireosylva gilca*). St. Louis, Mo. On April 18th, first saw two singing at old stands. April 22d. Have increased and are regularly heard, and by the 29th they were mating and were industrious songsters. May 1st. Height of the migration. Manhattan, Kans. First, April 24th. Litter, Ill. First, April 15th. Jefferson, Wis. Was the first Vireo of the season and came on May 5th, when four single ones were seen at as many widely separated places; all in full song. May 6th. Quite an increase; heard in about a dozen places, and on the 7th they were much the same, with a few additions. May 12th. The height of the season; forty to fifty seen during the day. May 19th. The height still continues, with much song.

YELLOW-THROATED VIREO, (*Lanius flavifrons*). Anna, Ill. First one, April 20th St. Louis, Mo. First, seen on April 17th, in song. May 1st. Height of the season. Manhattan, Kans. First, April 24th. Two seen May 4th. It is here a rare Summer sojourner. Litter, Ill. First, about April 28th. Jefferson, Wis. First, saw one on May 10th. Height of the season was May 12th, and the bulk departed during the next week. Saw one on May 19th, and another on May 23d, which was the last one noted, though it probably breeds in favorable localities.

CLIFF SWALLOW, (*Petrochelidon lunifrons*). St. Louis, Mo. First, seen on April 14th, and by the 29th had increased but were not in full numbers. May 1st. About one-fourth are here. May 3d. Bulk at colonies. Manhattan, Kans. First, April 25th; by the 29th, in full Summer numbers. Griggsville, Ill. Twelve seen for the first time on April 13th. Racine, Wis. First, May 3d. Jefferson, Wis. First, saw one on April 4th, but no more until the 24th, when a second one appeared. April 28th. For the first time are common and the bulk of the species is

here. By May 7th, most of the migrants had left and they were in about Summer numbers.

BARN SWALLOW, (*Hirundo erythrogastra*). St. Louis, Mo. First, seen on April 14th. Litter, Ill. First, April 28th. Grand View, Ia. First, saw four on April 15th. Racine, Wis. First, May 3d. Jefferson, Wis. First, saw one on April 27th, and on May 9th, though more had arrived, they were still quite scarce. In the evening of May 11th, the bulk arrived, but it was not yet the height of the season. May 19th. In full Summer numbers, but not very common here; probably about ten or twelve pairs in the square mile upon which the town is situated. Argusville, Dak. First, May 12th.

WHITE-WINGED CROSSBILL, (*Loxia leucoptera*). Anna, Ill. According to Ridgway they are an occasional Winter visitant here. Elk River, Minn. On February 7th, seven were sent me from eighty miles north of here. February 26th. One female seen feeding on Tamarack cones. March 29th. Killed a male; its lower mandible turned to the left, while in six others that I have it turns to the right. Its plumage was changing; there were a good many brown feathers around the head and neck.

[The irregularity of the movements of the Crossbills are strikingly brought out in the last three years' records of migration. In 1883, they were noted from Jefferson, Wis., and Coralville, Ia., besides the notes given above. During the whole of 1884 not a note was contributed on their movements. While the Winter and Spring of 1885 were marked by an unusual commonness, even abundance in the eastern part of our district. They were noted from south of 38° in Illinois, and over a dozen records attest their presence in Wisconsin, Illinois and Iowa.]

COMMON RED-POLL, (*Aegithus tinaria*). Anna, Ill. Rare Winter visitant; saw but one flock during the past Winter. St. Louis, Mo. Winter visitant. Saw a flock of thirty to thirty-six on February 12th. Jacksonville, Ill. Going over in flocks March 4th. By April 9th must have

gone on, as very few are now seen. Jefferson, Wis. Winter visitant, though chiefly transient. Occasionally seen during the Winter, but most of them left during the cold time in January. The first flocks came back again March 14th, and the last was seen March 24th. Waukon, Ia. About sixty seen March 11th, and on March 25th a flock of two hundred and fifty or more. Mitchell, Ia. Lots of them during the Winter. March 25th, a flock seen; probably seventy-five per cent. have gone north. Elk River, Minn. Winter visitant; February 15th, twelve seen in an eight miles tramp. March 13th. Numerous, and collected in large flocks. April 3d. About two hundred seen; also saw a Sparrow Hawk catch one on the wing. April 12th. Nearly two hundred; and a few days later all were gone.

AMERICAN GOLDFINCH, (*Astragalinus tristis*).

Anna, Ill. I saw them but twice during the Winter. The first time was about the middle, and the second time about the last of December; weather cold, ice two inches thick; saw about twenty each time. The plumage was very plain. St. Louis, Mo. A few were seen January 1st, but by February 3d it was too cold for them and they almost all left. February 12th. In a nine miles' walk saw only two birds, while in the same place four flocks were seen on January 29th. March 16th. Are beginning to come back, and were found in four places; a few birds only and in plain dress. A song once heard. On April 15th they were still scarce, and on the 18th single calls were heard in six places. April 20th. More conspicuous, and on the 21st was seen a flock of about twenty with the males in full Summer dress. On April 29th they had begun to be quite numerous, and by May 1st were everywhere and could be found in large flocks on high trees over the water. Such companies make so much noise that the song of other birds is drowned. They are much like Blackbirds; all the voices stop suddenly for a moment. May 11th. Height continues, but by the 15th they had decreased. Manhattan, Kans. Partially resident; seen January 5th, and several times during the early part of March. By March 25th they were common. April 7th, two hundred seen in five miles. April 14th, many. By April 29th they had reached full Summer numbers. Jacksonville, Ill. May 7th. First. Liter, Ill. In flocks January 20th. None seen from then to May 2d, when flocks reappeared. Grand View, Ia. First, May 5th. Coralville, Ia. First, May 22d. Polo, Ill. Numerous May 15th. Jefferson, Wis. May 10th. First arrived in flocks; thirty to forty birds seen. May 12th. Not quite the bulk. May 14th. Nu-

merous but not the height; heard almost constantly and still in flocks. Waukon, Ia. First, May 6th. Mitchell, Ia. Several small flocks seen during the Winter. Hastings, Minn. First, May 23d. Pine Bend, Minn. First, May 27th.

PINE GOLDFINCH, (*Chrysomitris pinus*). Anna, Ill. According to Ridgway they are an occasional Winter visitant. I saw none last Winter. St. Louis, Mo. One bird seen on January 18th. Manhattan, Kans. Common Winter visitant. Last Winter they were unusually abundant. Seen through all of December and January. On March 28th, were still abundant, a flock of at least five hundred. Another flock of perhaps three hundred was seen April 29th, and even as late as May 4th fifty were seen. Jefferson, Wis. Winter visitant, transient, and possibly Summer sojourner. A small flock remained about the Apple trees in my yard nearly all Winter; in early Spring they slightly increased, and were very tame, allowing us to pass within five or six feet of them. They spent the most of their time on the ground under the Pines. They gradually disappeared and the "last" was set down as April 5th. However, on May 19th, I shot a male of this species, and in the latter part of May small flocks were again seen, and all through the month of June they were quite common.

GRASS FINCH, (*Poecetes gramineus*). Anna, Ill. According to Ridgway they are resident here. St. Louis, Mo. Transient. First, seen on April 12th. Manhattan, Kans. April 21st was the first time it was certainly seen. It was undoubtedly seen earlier but not surely identified. April 29th. Summer residents are here in full numbers. Liter, Ill. First, both male and female, April 22d. Griggsville, Ill. First, April 7th. Racine, Wis. First, April 18th. Jefferson, Wis. On April 12th, first saw about forty, all of which came during the previous night. They are full of song; mating and fighting. April 14th. Only half a dozen seen. Not much change from this date until May 5th, on which day quite an increase was apparent, and on the 6th they were in Summer numbers. They are not very common here. Waukon, Ia. First, May 6th.

LARK FINCH, (*Chondestes grammaca*). St. Louis, Mo. First, seen on April 3d, and by the 29th was one of the prominent songsters by the roadside. Manhattan, Kans. First, April 10th; on the 29th was in full Summer numbers. Glasgow, Mo. First, April 13th. Polo, Ill. Numerous May 4th. Racine, Wis. First, April 12th. Jefferson, Wis. First, saw two pairs April 27th. May 12th. They are quite scarce, having been seen only six or eight times this Spring.

FIELD SPARROW, (*Spizella pusilla*). Anna, Ill.

Resident, quite common in Winter, but have never counted them. St. Louis, Mo. On March 13th, first saw one male, in song, at the same place at which I found the first bird last year, twelve days earlier. By March 16th, several old acquaintances have returned, and are sitting on the same trees as in former years. They are full of praise, if song means praise. March 17th. A few more, about the bulk of the species. March 30th. The height of the migration. Manhattan, Kans. First, April 30th. Liter, Ill. Seen January 6th. (?) Polo, Ill. First, April 15th. Jefferson, Wis. First seen by me on April 25th, but this probably came some time before. May 10th. Seen for the second time; seems to be quite uncommon about here. Hastings, Minn. First, April 6th, four seen. (?)

SONG SPARROW, (*Melospiza fasciata*). Fayetteville, Ark. Seen March 17th. Anna, Ill. Winter visitant; saw from ten to fifty per day. St. Louis, Mo. Winter visitant; not many, but certain to find a few along the banks of creeks. Same conditions and numbers continued all through December, January and February. On March 9th they were found in a very musical mood, but in the same numbers. March 13th. New arrivals observed, and on the 14th song was heard in many places. April 6th. Height of the season. Bulk departed April 8th, and the last one was seen April 9th. Manhattan, Kans. First, March 10th, abundant, fifty seen in five miles. Twelve seen on the 12th. Three seen April 7th, and the same number the 14th. No change after April 29th. Liter, Ill. Resident. Seen January 6th. Jefferson, Wis. First, saw three on March 24th, and during the week from March 25th to 31st, seven more were seen. April 4th. Everywhere in twos and threes; forty to fifty seen. On April 12th was the height of the season; two hundred seen. April 24th. Not one-tenth was left, but by the 21st they were again more numerous, and in about Summer numbers. Waukon, Ia. First, April 11th. Elk River, Minn. First one seen April 8th.

SWAMP SPARROW, (*Melospiza palustris*). Fayetteville, Ark. Common all Winter in low swampy ground. Anna, Ill. Winter visitant, and perhaps resident. Saw from ten to fifty per day. St. Louis, Mo. Winter visitant and transient. On January 29th one bird was found in the same place as last Winter. March 2d and 8th. Three birds were seen, and on the 14th they were seen several times. The bulk arrived April 4th, and the height of the season was on the 9th. April 17th. Decreased; one party only, but on the 20th there were small parties in many places,

and they were still numerous on May 2d. The last regularly was May 5th, but single young birds were seen May 14th, 15th and 17th. Manhattan, Kans. Were certainly here by April 7th. Liter, Ill. January 20th. Males and females in flocks (?). Racine, Wis. First, April 17th. Jefferson, Wis. I saw the first one on April 28th, but they probably had come a week earlier.

BLACK-THROATED BUNTING, (*Spiza americana*). St. Louis, Mo. On April 21st, first saw a party of twenty singing males. April 29th. In small flocks, which dispersed during the morning hours of warm days, re-entering old stands. May 1st. The bulk of the species has arrived, and they are now very conspicuous in the morning, singing, or flying singly or in pairs, calling. Manhattan, Kans. April 26th. First, April 29th. Full Summer numbers. Polo, Ill. First, May 3d. Mitchell, Ia. Has been taken here. Pine Bend, Minn. Occurs here to my certain knowledge. I saw one on a fence singing, in an open field half a mile from any timber. It was positively identified. [This is the most northern record for Minnesota that I have seen, but it is also recorded from the same latitude at Huron, Dak.]

BOBOLINK, (*Dolichonyx oryzivorus*). Waxahachie, Tex. First, February 20th. Last, April 1st. St. Louis, Mo. On May 2d, in the morning great numbers were seen going north in five large flocks. May 3d. Two males were seen in company with Red-wings; by the 5th they were present in large numbers, and from the 15th to the 17th I noted a flock of a hundred and fifty males and females. Last one was seen on May 21st. Manhattan, Kans. First, May 7th. Not known to nest here. Polo, Ill. First, May 14th. Racine, Wis. First, April 28th. Jefferson, Wis. First, saw one flying and singing on May 5th, and on the 6th two more. May 7th. There was a slight increase; about a dozen seen, and on the 10th there was a still greater increase, but they were not yet common. The bulk arrived on May 12th, and on the 19th was the height for males, though not for females. On May 26th the first females came, and on June 1st they were thinking about building. Argusville, Dak. First May 13th.

Notes from Silver City, N. M.

BY CHAS. H. MARSH.

(Concluded from page 149.)

Cassin's Kingbird builds a very pretty nest of a dusty white weed mixed with grasses and lined with wool and fine grass and situated well out towards the end of a branch of the Oak or Cotton-

wood, from twenty to thirty feet from the ground, though I found one nest in my cactus patch, high up on an upright stalk, in a dense thicket of prickly branches; a most secure place in which to rear her young. The eggs are usually four in number, white, with large amber brown blotches, thickest on the large end, measuring 1.00x.70, and are laid during June and early July.

The Canon Towhee usually places its nest of soft, fine grass, in the branches of the cactus, from eighteen inches to three feet from the ground, though occasionally some low bush furnishes it with a resting place. The eggs, from two to four in number, measure .90x.75, and are of a bluish-white, thickly spotted and blotched with brown and lilac. One nest that I found this season was built upon the old nest of a Mockingbird in a Box Alder, some six feet from the ground, and contained four eggs, incubation well advanced. Aside from the foundation structure the nest was a typical one. Nesting commences in May and continues into June, though I am inclined to think that but one brood is reared.

Of a near relative, the Spurred Towhee, I have found but few nests and these in June. With but one exception they were upon the ground near the root of a tree or bush. The nest spoken of was in a bunch of "wire grass," which raised it a foot or little more from the ground, and was composed of the coarse stalks of the "wire grass" lined with finer grasses. It contained three eggs .90x.75, greyish white, with fine reddish mottling.

June 3d, a Black-throated Sparrow, flying from a Cactus, disclosed the resting place of its nest, a dainty structure of fine grass, lined with a few horse hairs, some four feet from the ground, and containing four bluish-white eggs. 70x.45. Several other sets were taken during the month, one from a giant Soapweed and one from a bunch of "wire grass"; the eggs from three to four in number.

Early in the morning of May 11th I started for the foot hills at the base of the Continental Divide anticipating a long and busy day among the birds. Nor was I disappointed, for aside from securing a well filled bag of desirable specimens, I discovered the nesting places of a number of my feathered acquaintances.

First from a hole, some twenty-five feet from the ground, in the dead trunk of an Oak flew a female Harris's Woodpecker. A climb brought me to the opening, only to find from the loud twittering within that I was too late to secure the eggs and that the nest was inhabited by young birds. A little later in the day, while eating my lunch near a spring in the woods, my attention was attracted by a female Hummingbird, which alighted on an overhanging branch of an Oak

sappling some fifteen feet from the ground. Observing it carefully, I soon discovered that it was at work upon a nest, attaching bits of lichens to the outside. She soon discovered me, and fearing that she might abandon the nest, if disturbed, I moved to some little distance and left her to her work, intending to visit her again at a later day.

But a short distance from the spring stood a tall, half dead Oak, and high up in its branchless trunk from a small opening protruded the gayly banded head of a California Woodpecker, indicating that she had a nest within. But it was far out of my reach, and reluctantly I passed on.

A Wollweber's Titmouse, darting about among the branches of a Juniper tree next attracted my attention and I was raising my gun with the intention of adding it to the contents of my bag, when, seizing some insects in its bill, it flew to a neighboring Oak and disappeared. A few moments observation served to show me that Wollweber and his mate were busy carrying insects into a small hole, apparently a deserted Woodpecker's nest, some twenty feet up on the trunk of the Oak, presumably to supply the wants of a family of small Wollwebers. And voracious appetites they must have had, judging from the number of times that the parent bird passed into and out of the hole during the ten minutes that I watched them, carrying with them each time some tempting morsel. To reach the nest promised a hard scramble and as I am not as good a climber as in my younger days, before the harsh east winds of New England played sad havoc with my lungs, I was forced to confine my observations to the ground.

One week later I returned to look at my Hummingbird's nest, but found the female still at work upon it. Now, however, the outside was completed and she was busily engaged in lining it. I had abundant opportunity to watch her lying upon the ground under an adjacent tree, for she paid but little attention to me, though fully aware of my presence. Flying to the branch with some flossy material she would alight upon it for a minute, then entering the nest would place the floss in position with her bill, pressing it down into place, then she would whirl around five or six times, pressing against the sides of the nest with her breast, evidently adjusting the inside to her form. This operation was repeated many times while I watched her and I was congratulating myself that at my next visit I should secure a fine set of eggs. At no time during my watch did I see the male, but from my observation of the female think that it was the Broad-tailed Hummingbird, but cannot be positive.

High up in the top of a high Juniper was a mass of sticks, from which in answer to a loud shout flew a medium sized Hawk, which I took to be a Prairie Falcon. Here again I was doomed to disappointment, for huge of size and bare of branches for many feet, I could not hope to climb without some assistance, which I determined to bring with me when I returned for my Hummingbird's nest, but alas, within a week Uncle Sam's pets, the Apaches, made a bloody raid through this section, murdering and pillaging as they went, shooting a ranchman within a short distance of the location of my nests and for several weeks rendering it unsafe to venture into the mountains, so that my Hawk and Hummingbird reared their broods unmolested by me. The raid put a stop to an expedition I had planned to the top of the Divide, where I had expected to find the nests of the Red-faced and Grace's Warblers, as well as other rarities, which I was positive nested there.

Loons at Poland, Me.

BY G. H. R., BOSTON.

The writer took advantage of an opportunity that enabled him to spend the collecting season of '85 at Poland, Me., where he arrived on the afternoon of June 22d.

The place, to his thinking, promised much as a field of ornithological research, (which promise was afterwards abundantly verified,) being situated in the midst of large woods and fields, with numerous lakes and ponds lying almost at the door. Without much trouble, an able assistant, whom we will call Ross, was found in the person of an enthusiastic and experienced local sportsman who was thoroughly acquainted with the surrounding country. Monday, June 29th, was the day set for an excursion after Loons' nests, which, as he was informed, were to be found in the "Range Ponds," one or more pairs regularly nesting there every year. We started in the morning, I with my little 32-calibre skeleton rifle and Ross with his 22, with which I soon found he could do remarkable work, and after twenty minutes brisk rowing, emerged into the head of the pond, but nothing in the shape of a Loon could be seen or heard. We pulled up the right hand side of the pond until we rounded a point, disclosing what appeared to be the mouth of a small stream, which terminated in a circular-shaped basin of water or swamp so thickly filled with rank grass, dead trees and floating islands that a boat could barely be forced through.

The stream and basin were surrounded by a

heavy growth of tall Pines and Birches, dead at the water's edge, making the whole place damp and gloomy in the extreme. Just as we reached the edge of the basin the loud cry of a Loon was heard at the mouth of the stream, directly behind us. Seeing us approach, she had slipped off her nest, and diving, swam under us, came up away in our rear. "There she is," said Ross, "and she has a nest somewhere in this place close to the water." Standing up for a better view, the first sight upon which the writer's eyes rested, within ten feet of the boat, was a mound-shaped hillock, with a slight depression at the top, in which were two large dark colored eggs, which were immediately appropriated. The nest was built upon the extreme edge of a floating island, of weeds, sods and water grass, among which were to be seen some dead sticks, evidently put there to give solidity to the structure, and was nearly as large around as a bushel basket and about eight inches high. The eggs were beauties, averaging 3.76x 2.37, of a dark drab color and covered with darker spots, thickest at the greater end. When found, the under part of the eggs was wet, showing that the weight of the bird, when on, sunk the nest partly under water.

While I was jotting down minutes in my note book a second Loon was heard, and both birds were seen at the mouth of the stream, trying to attract our attention from the nest by loud cries and flapping of wings. Ross set me ashore and went back to the nest while I crept through the underbush until I got within fifty yards of them. Waiting until the female rose in the water, presenting a good mark, I fired. The report had not died away before the head of the bird dropped forward into the water and I knew I had bagged her, as it is a peculiarity of these birds when shot that only the head settles forward and the body continues to float, like a Duck with its head under water. Slipping another cartridge into the barrel I waited for the other to rise. He was down only a few seconds and came up a little way off, but immediately swam to his mate. Again getting a fair shot I fired, and although I heard the thud of the bullet as it struck him, he dove and came up nearly half a mile out into the pond. Ross came up with the boat and we gave chase, but it was only after half a day's hard work and a large expenditure of cartridges, that he was finally brought to by a splendid shot by Ross.

THICK-BILLED GREES (*Podilymbus podiceps*)
IN KANSAS.—Mr. V. L. Kellogg reports finding, May 26th, 1885, a number of nests of this bird containing from five to ten eggs each.

Catalogue of the Birds of Kalamazoo County, Michigan.

BY DR. MORRIS GIBBS.—PART IX.

181. [536.] *Actodromas fuscicollis* (Vieill.) Ridg. Bonaparte's Sandpiper. A rather rare, irregular migrant. Only recorded a few times with us.

182. [538.] *Actodromas minutilla* (Vieill.) Bp. Least Sandpiper. Not a rare transient both Spring and Summer. Observed it as late as May 22d in the Spring, but it does not summer here. Have seen it by August 10th in the southern journey. Found around the borders of lakes associating in small flocks with the Semipalmated Sandpiper.

183. [539a.] *Pelidna alpina americana* Cass. Red-backed Sandpiper. Arrives in small flocks or very often singly about May 15th, and remains frequently as late as the first of June. Not rare in Spring. Do not know of it in the Autumn. It is found here in late August.

184. [541.] *Ereunetes pusillus* (Linn.) Cass. Common and generally associating with the Least Sandpiper. Have taken it as late as June 1st in the Spring migration out of a flock of forty or more. Have secured it as early as August 11th, and yet have not satisfied myself that it remains during the Summer. Quite common, both Spring and Autumn, along the edges of lakes and ponds.

185. [548.] *Totanus melanoleucus* (Gmel.) Vieill. Greater Yellow-legs; Tell-tale. Not a rare Spring and Fall transient around our lakes and ponds. Have not sufficient data to give a good idea as to arrival and departure. A noisy, well known species; as its name implies it is a tell-tale and often scares game ere the hunter has reached a good point to shoot from.

186. [549.] *Totanus flavipes* (Gmel.) Vieill. Lesser Yellow-legs. A smaller species than the last and more abundant. I have taken it May 4th and 16th, August 30th and September 7th, showing that it is with us quite a time although not a Summer resident. It, like the last, is often shot for food, but although tender is not as large as a common snipe.

187. [550.] *Rhyacophilus solitarius* (Wils.) Cass. Solitary Sandpiper. Not so abundant as the last named species. Inclined to resort to out of the way places. An unfrequented low piece of woods is often chosen. Arrives in late April and remains two weeks or more before passing north. It returns to us late in August and remains until September 20th.

188. [555.] *Bartramia longicauda* (Bechst.)

Bp. Bartram's Sandpiper; Field Plover. A common species and nests in many quarters, although the eggs are rarely found. Arrives in the latter part of April as a rule, but sometimes earlier. Remains until October 15th and occasionally later than November 1st.

189. [556.] *Tryngites rufescens* (Vieill.) Caban. Buff-breasted Sandpiper. A rare species, only twice taken, September 17, 1875, and September 14, 1882. Not yet observed in Spring.

190. [557.] *Tringoides macularius* (Linn.) Gray. Spotted Sandpiper. Our most abundant representative of the family during Summer. Nests near lakes, ponds and streams on marshes, fields and shores. Occasionally appears as early as March 27th, but usually in April. Is found with us in October frequently in late seasons.

191. [560.] *Numenius borealis* (Forst.) Lath. Eskimo Curlew. Once taken by Benjamin F. Syke, October 28, 1879. A rare migrant.

192. [565.] *Steganopus wilsoni* (Sab.) Coues. Wilson's Phalarope. An irregular transient, only occasionally seen. Taken as late as May 21st one season. It does not summer here however. Only once taken in the Autumn, Sept. 8, 1878.

193. [569.] *Rallus elegans* Aud. Red-breasted Rail; Marsh Hen; King Rail. A rare transient. Only twice captured to my knowledge. These specimens were taken near small lakes in Spring.

194. [572.] *Rallus virginianus* Linn. Virginian Rail. A common species. Breeds near small lakes and ponds; usually preferring dryer grounds than the next species; nesting in the higher parts of the marshes. Common from May 10th to September 20th.

195. [574.] *Porzana carolina* (Linn.) Baird. Sora Rail. Our most abundant representative of the family. Nests around lakes and ponds where grass and cat tails are to be found in pools of water. Arrives in late April or early May and remains from five to five and a half months. Afford but poor shooting here as they rarely fly.

196. [579.] *Gallinula galeata* (Licht.) Bp. Florida Gallinule. This species is confined to a few lakes and ponds in these parts and some distance from my home, so that I have had but little chance of studying their habits. Have found but few nests, which were built much in the same manner as the nests of the other rails. Placed in rushes over water at the edges of lakes and ponds.

197. [580.] *Fulica americana* Gmel. American Coot. Arrives about the middle of April and remains a month sometimes. Appears again from the North about September 20th and stays until November 10th and sometimes much later. Ex-

ceedingly abundant during migrations and usually in numerous flocks. Occasionally in pairs or singly. Does not summer here.

198. [583.] *Grus canadensis* (Linn.) Temm. Sandhill Crane. I have never met with this bird, but it was once common here and years ago appeared in the county each season. Undoubtedly passes through this territory each year as it is recorded from the north.

199. [588.] *Olor Americanus* (Sharpless.) Bp. Whistling Swan. Never abundant to my knowledge. Never a regular visitor, but occasionally seen Spring and Fall on the larger of our inland lakes. Secured a fine specimen at Long Lake last April 24th. which had in company with three other birds been dallying for a week or more. One season they were seen as early as March 22d. Only captured a few times of late years, but once not very rare.

200. [591.] *Chen hyperboreus* (Pall.) Boie. Snow Goose. Not a rare irregular visitor. Secured three out of a flock of ten or more in October 24th, 1884, in company with a friend of mine. Flocks appear at odd times Spring and Autumn in this section.

201. [594.] *Bernicla canadensis* (Linn.) Boie. Canada Goose. Arrives, or more properly passes over from February 23d to March 16th. A few seen as late as April 14th. Returns in the southern migration about September 25th, at the earliest, and becomes abundant in flocks by October 20th. Often-observed as late as November 25th. Rarely shot, however, because of their variness.

202. [601.] *Anas boscas* Linn. Mallard; Green-head. Abundant migrant. Occasionally arrives by March 15th, usually later. Quite common until April 20th. Always appears in flocks. Most of the birds pass north to breed, but a few isolated pairs nest with us each season. Again common in September, remaining until October 20th, frequently, and occasionally to Christmas in open seasons. One nest which I met with was placed in a hollow stub, similar to the Wood Duck's nest. The date was May 31st, and the eggs were ready to hatch.

203. [602.] *Anas obscura* Gmel. Black Mallard; Dusky Duck. Common migrant, spending about two weeks with us, both Spring and Autumn. Does not Summer to my knowledge.

204. [604.] *Chaulestus streperus* (Linn.) Gray. Gadwall. A rare transient occasionally taken in the Fall migration.

205. [605.] *Dafila acuta* (Linn.) Bonap. Pintail. A common species Spring and Autumn, arriving in March and departing in November. Does not nest here. A very beautiful and grace-

ful species, much resembling the geese on the water.

206. [607.] *Mareca Americana* (Gmel.) Steph. Baldpate; American Widgeon. Observed during migrations north in April and early May, and in the autumnal journey in October. Not rare but not often taken because of their extreme shyness.

207. [603.] *Spatula clypeata* (Linn.) Boie. Shoveller. A rather irregular migrant, taken occasionally both Spring and Autumn.

208. [609.] *Querquedula discors* (Linn.) Steph. Blue-winged Teal. Arrives during first three weeks of March. Does not remain during Summer. Appears in early October from the North, remains until the last of the month, sometimes later. Is quite abundant from October 10th to 20th.

209. [612.] *Nettion Carolinensis* (Gmel.) Baird. Green-winged Teal. Abundant some seasons. Can't give reliable Spring arrivals. Occasionally remains until November 15th. Does not nest here.

210. [613.] *Aix sponsa* (Linn.) Boie. Wood Duck; Summer Duck. An abundant species, but not so common as formerly. In fact, all the Ducks are much less common than a few years ago. The onslaught of the hunters has worked havoc amongst their numbers, and not one is seen now in the Fall where a hundred were to be found ten or eleven years ago. The Wood Duck arrives during the first week of March in open seasons, and even February, but generally the third week in March. A few remain to nest with us each year. All do not depart for the south until November.

211. [614.] *Fulix marila* (Linn.) Baird. Scaup Duck; Big Blackhead. Abundant. Perhaps the most common species in the family. Arrive by March 16th, or earlier, and is abundant by April 1st. But there are not a dozen here in the Spring where a hundred are found in the Fall. Associate with Lesser Blackheads and Buffleheads on the lakes and fly frequently in vast flocks. I have met with more of them in late Autumn than of all the other species of Ducks combined. Often shot as late as November 20th.

212. [615.] *Fulix affinis* (Eyt.) Baird. Little Blackhead. Abundant, and so similar to the last as to need no description as to habits and appearance. Considered identical by many and often only identified with difficulty; never with certainty while on the water.

213. [616.] *Fulix collaris* (Donov.) Baird. Ring-billed Duck; Collared Duck. A rather rare transient. Arrives in March from the south, and from the north in September.

THE
ORNITHOLOGIST
—AND—
OÖLOGIST.

A MONTHLY MAGAZINE OF
NATURAL HISTORY,

ESPECIALLY DEVOTED TO THE STUDY OF

BIRDS.

THEIR NESTS AND EGGS.

DESIGNED AS A MEANS FOR THE INTERCHANGE OF NOTES
AND OBSERVATIONS ON BIRD LIFE.

FRANK B. WEBSTER, Publisher,

PAWTUCKET, R. I.

Editor's Notes.

The annual meeting of the American Ornithologists' Union will be held in New York, commencing Tuesday, November 17. The place of meeting will be the American Museum of Natural History, 77th Street and 8th Avenue. It is expected that, in addition to the usual routine business of such an occasion, a good list of scientific papers will be presented, and that the meeting will be fully attended.

The A. O. U. Committee on the Classification and Nomenclature of North American Birds announce the early publication of their report. It is to consist of two parts, of which Part I is "the New Code of Nomenclature adopted by the Union"; and Part II a "Classified List of North American Birds, giving the names of the higher groups, as well as of the species and subspecies, from subgenera to orders." A concordance is also given of the previous Check Lists, and a brief statement of the geographical distribution of each species and subspecies, with special reference to its North American range. The work is the result of the expenditure of much time and research by the Committee.

The Publisher announces that after this number the *Ornithologist and Oologist*

will only be sent to those whose subscriptions for the current year have been paid. He continued the list of the previous year thinking that doing so would be a convenience to many and that payment would be made during the year. If this had been done, the Magazine would have paid its expenses. Looking over our list we find that fully one quarter of our subscribers are indebted to us for the current year's subscription. The office of publication will be removed to Boston after issue of the December number, which will be accompanied by an Index for the Volume.

The Little Yellow Rail, (*Porzana noveboracensis*), in Kansas.

BY PROF. L. L. DYCHE, LAWRENCE, KANSAS.

On the 18th of last April, while hunting for water birds about four miles southeast of the State University, Lawrence, Kans., my dog came to a stand in the high grass and weeds which stood in a marsh. I tramped and kicked through the water and entangled vegetation, but could not flush a bird. The dog persisted in his point until I had proceeded several yards, when he thrust his nose into the grass and water and then came running to me with something in his mouth. He placed a small bird in my hand, which at first sight resembled a young chicken. It proved to be a Little Yellow Rail, (*Porzana noveboracensis*), the first specimen of the species ever found in this State.

Later, while tramping through a grassy meadow about two and a half miles south of town, Oct. 1st, my dog "Joe" caught and brought to me another specimen of this Rail. It was taken in a wild or natural meadow, where the grass (the second growth this year) was fresh and green, and about a foot in height. The ground was moist, but not at all like a marsh.

To my knowledge these are the only specimens of this species ever taken in this State. I have them mounted in the State University Museum.

My experience would lead me to think that this species is not so rare in the State, as it is hard to find. Neither of the specimens which I have secured would flush; and it was only by the assistance of my ever faithful dog "Joe," that I was made acquainted with their presence.

Practical Taxidermy.

BY FRANK B. WEBSTER.

CHAPTER III.—SUPPLIES.

We will next direct our attention to supplies, or materials required. They are very simple and can be obtained almost anywhere; but time will be saved and perhaps expense by getting them from a reliable dealer in taxidermists' supplies. We will first consider the poison, which is the bugbear of the art. It is at present universally considered by experts that it is absolutely necessary to use arsenic in some form; the two popular compounds being Arsenical Soap and Dry Preservative. The soap is made as follows: Arsenic, pulverized 2 lbs.; salt of tartar 12 oz.; camphor 5 oz.; lime in powder 4 oz.; white soap 2 lbs. Shave the soap into small pieces, put it in an earthen pan over a slow fire; add a little water and while it dissolves stir with a wooden spoon; take it off, add the tartar and stir till it is amalgamated; add lime and arsenic slowly as it grows solid; mix it well. Grind up the camphor with a little alcohol, or dissolve it in the same; add this to the mixture when quite cold. It will then be ready to put in jars. To use it: Take a deep dish, put in about a gill of the soap, add water and with a brush [a common shaving brush is good] work it until it is about like cream. With this paint the *inside* of the skin. Then immerse it in a box of sawdust and shake, at once. Enough of the sawdust will adhere to absorb the moisture and prevent it from soiling the feathers. If the soap in the dish dries before you have occasion to use it again, all you will have to do is to add water as before. If the skin is very large apply plenty of the soap.

The Preservative is either dry arsenic (pulverized,) or arsenic and alum, equal bulk of each well mixed. I prefer the latter for work in New England, but parties who collect south have in some instances stated that they prefer the former. It is applied to the inside of the skin with a rabbit's foot, immediately after skinning. I would recommend to use the Preservative on all birds smaller than a Yellow-shafted Flicker, and the Soap on all larger.

With careful usage, from what has come under my observation, I do not think any danger need be apprehended. I would always wash one's hands after use, as the poison will occasionally get into scratches and cause them to fester. It acts like a sliver, and I have often scraped it out with the point of my knife.

For stuffing or filling, I use Excelsior, Tow and Jute. The first is fine wood shavings, such as are

used by upholsterers. This I use for making the body form. American tow is the best for filling the necks and in about the body. Jute or very fine tow I use for Canaries and smaller birds. For the largest birds I sometimes cut tow and excelsior together.

Wire, to be suitable, should be of the best quality and annealed soft, so as to be free from all tendency to spring. It is sold by numbers, the numbers corresponding with some standard gauge. There are several. I have adopted that of the Washburne & Moen Manufacturing Company, commencing with number 0 for the heaviest—the numbers run up, number 30 being the finest required by taxidermists. I have compiled the following table of sizes used, from birds in my possession at this writing, which will be of use to the beginner. There will be necessarily some variation from it. A bird mounted with wings spread, sometimes will require a size larger wire for legs than if it was to be mounted with wings closed; also if to stand on one leg it should be a size larger.

No.	No.
Hummer.....24	Wood Duck.....13
Blue Bird.....20	Elder Duck.....12
Blue Jay.....19	Eagle.....7 to 9
Purple Grackle.....18	Canary.....21
Grouse.....14	Cat Bird.....19
Long-eared Owl.....13	Yellow-shafted Flicker...18
Red-tailed Hawk.....12	Woodcock.....17
Golden-eye Duck.....12	Screech Owl.....17
Herring Gull.....11	Cooper's Hawk.....14
Warbler.....23	Night Heron.....12
Suipe.....18	Loon.....10
Quail.....17	White Pelican..... 9
Dove.....14	Barred Owl.....13
Green Heron.....15	Great-horned Owl.....11
Sharp-shinned Hawk.....14	

To straighten wire—sizes 16 and finer: Cut off a piece about twenty feet long, fasten one end to any stationary object. With heavy pliers take hold of the other end and pull steadily till you feel it give. It will then be found perfectly straight and can be cut into convenient lengths, from six to twelve inches. The heavier sizes should be cut as required, and with a small hammer pounded straight on the anvil. To sharpen the fine wire, hold an end on left forefinger with thumb, and with the other hand sharpen with file, using the file only one way, from you, at the same time with the thumb that holds the wire keep twisting. This will cause an even point, and with a little practice you can sharpen half a dozen at a time.

Plaster of Paris for drying: Select a coarse grade rather than the finest, as it will not adhere so readily to the feathers.

The rule for ordinary cleaning is as follows: Wash the soiled parts carefully with tepid water,

using a fine sponge. Have a tray filled with plaster, put the wet part to the plaster, rub it vigorously, pushing off the wet plaster and putting on the dry. Keep the feathers moving. *Work it till the plaster will not stick.* Then take the bird and give it a thorough brushing, and blow it with your breath till you get out all the plaster dust. Take it by the wings and shake well. The feathers will resume their natural position or lay. Be sure that the nostrils and bill are well filled with cotton, or you may shake blood out and have more cleaning to do. (The vent of large birds should also be filled with cotton.) Sometimes after skinning, you may have to clean the bird again, as the process will often force blood out through the wounds, but the second cleaning is not as hard as the first. Many do not clean their birds till after skinning. My reason for doing before is, that I consider there is more trouble from the soiled parts soiling other parts than from having to wash a second time. If your bird is a white one and you wish to remove stains and dirt other than blood, wash first with spirits of turpentine and dry with plaster; then wash with naphtha and dry with plaster. As a general thing this will succeed. If not, then try soap and water—wash out the soap and dry with plaster. Ammonia and water is also effective. Salt and water is recommended to clean off blood; also alcohol and water. Benzine seems to act about the same as naphtha. The plaster has a whitening effect which assists very much. The stains that are troublesome are confined to white birds. The dark ones never trouble. I note that in looking over my collection, and that of others, I never notice blood stains, and I think if the dry blood was simply scraped off, the stain would fade so that it would not be seen in a short time.

One thing more. Do not be afraid of your bird. Take hold of it in a determined way. A washed Crow can be thrown into plaster all over till it looks like a Ptarmigan, and will come out all right in the end. Some use meal instead of plaster. If you wish to try it, get white bolted meal; keep it in a very dry place when not in use. Meal is a good absorbent of grease. In skinning birds that are very fat, such as shore birds, you can use it freely. Throw it on as you separate the skin and it will prevent the fat from soiling the feathers.

So much for supplies that are used in the actual stuffing. Those that are used in decorating, &c., we will consider later. Meantime we will attend to our bird.

Practical Entomology.

BY WRIGHT AND BATES, 73 HANOVER ST., BOSTON.

(Continued from Page 157.)

NIGHT COLLECTING.

This is one of the most lucrative employments of the collector of Lepidoptera. At night, and then only, can many of our rarest moths be captured. By far the best method for this work is what is known as "Sugaring" or "Baiting." For this a compound of stale beer, rum and molasses, mixed to the consistency of mucilage, is smeared upon the trunks of from five to twenty trees, preferably an apple orchard, by means of a brush or swab. Only a small place about eight inches square should be covered, which should be frequently examined by means of a bull's-eye lantern. The moths will flock to these baited spots on the trees, and may easily be taken by placing a killing bottle over them. It is well to hold the net under the baited spot before turning on the light, as many varieties have the habit of suddenly dropping to the ground on the approach of the light.

The collector should not be discouraged, however, if the first one or two nights do not prove remunerative, for every night does not combine the proper conditions, and the oftener the place is baited, the more moths will frequent it, sometimes coming in large numbers.

Advantage may be taken of the well known fascination of the moth for light, by means of the trap. This is a box open at one end; at the closed end, behind a glass screen, is a lamp, placed in front of a convex reflector; between this screen and the open end is a series of four glass plates, placed alternately at the top and bottom, extending two thirds the depth of the box, and raking toward the lamp at an angle of 70°.

The moth, flying toward the light, will strike against the first plate, flutter over it to the next and so on to the screen, which stops their progress and prevents them from getting scorched. They may be taken out by opening a small door, made at the top of the trap, and putting a killing bottle over them.

This trap may be in use while the collector is attending to the baited trees, and examined occasionally, or it may be left over night.

We have taken many moths, especially on warm, rainy evenings, by opening the window of a lighted room, or placing a light on a table on the piazza; they will be attracted by the light, and may be taken in the usual manner. Care must be taken, however, that they do not get scorched in the flame. Now will look over the

HOME KIT.

The first thing needed is the:

SETTING BOARD. This may be made like Fig. 8, which is the common model. Another form

Fig. 8.



is to take two strips of thin wood and nail, at the ends, two braces.

These end braces should be cut on top where the strips are to go, with the middle lower than the ends, so as to give a dish-like shape to the setting board. In this way the ends of the wings will be slightly higher than the body, this is desirable, since if the least dampness strikes the insect it is apt to droop. These setting-boards should be of different sizes and with grooves of different widths, some narrow for the butterflies and the narrow bodied moths like the *Geometridæ*, and some with wide grooves for the large-bodied *Sphingidæ*. These grooves should have a strip of cork or pita-wood at the bottom to thrust the pin through.

FORCEPS. Of these several pairs will be needed (Figs. 1-7). A pair like Fig. 9 will be necessary in order to pin or unpin an insect without slanting the hand too much.

Fig. 9.



THE SETTING NEEDLE is a sharp needle set in a handle, for moving the wing and legs of the insect in setting. Several kinds and sizes will be needed, some straight, some curved, and one with a hook at the end for drawing out the feet. Other handy tools are, a pair of fine pointed scissors, and several camel's-hair pencils.

MOUNTING.

Now we will suppose you are well rested after your collecting trip. Do not wait too long, however, else the insects will become too dry, and will need to be relaxed.

The first thing to do is to sort what you have taken. Throw away all damaged insects, unless very rare. What Lepidoptera you do not wish to mount, fold away in papers.

This is done by taking a strip of paper and folding it so as to form a triangular envelope, with the ends lapping over to hold it together. Do not stick down the ends, for the flies will surely get broken in opening. Now fold the wings of the insect together over the back, tuck the antennæ between them and place it in the paper, marking the fold with the name, the date and

place of capture. Diptera, Hymenoptera and Neuroptera may be treated in the same way.

Now, to set the Lepidoptera, force the pin, upon which the insect has been placed, through the cork in the groove of the setting board, being careful to choose a board suited to the size and form of the insect, and push it down until the wings rest flat on the top of the board, now with a setting needle or forceps, draw the wing carefully forward to its proper position and fasten by sticking a pin behind one of the veins of the wing near the body, never touch the fingers to the wing; serve all the wings in the same way, draw forward the paws or fore-legs, set the antennæ in position, and fasten all securely. For holding in position till dry, some recommend winding with cops as in Fig. 8, others hold the wings in place by strips of glass, but we prefer to place a strip of cardboard over the wings and fasten with pins or tacks. When mounted in this way the boards may be moved about without injury to the insects. Leave them on the boards at least a week, and some of the larger moths need two weeks to become thoroughly dry. Diptera, Hymenoptera and Neuroptera should be treated in the same way.

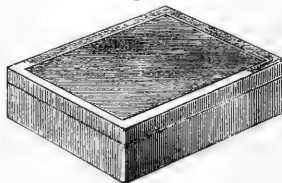
Coleoptera are best set by sticking the pin into a sheet of cork, and holding the legs and antennæ in place, by means of pins, until dry. Small beetles may be stuck upon bits of card, or on what are known as "mica mounts," through which the pins are thrust.

CARE OF COLLECTIONS.

No insect should be placed in the cabinet unless it is thoroughly dry, and care should be taken that none infested with Dermeter or Anthrenus are placed therein: the only place where we desire these little pests is dead and stuck upon a card in their proper position in the cabinet. Should the collection, however, become infested with these parasites, which indicate themselves by a little pile of dust and debris at the foot of the pin, give the collection a slight baking in the oven.

THE CABINET depends upon the means of the collector, but whatever is used it must be tight. The most useful form is a case of shallow drawers about two inches deep and fitted with tight glass covers. Boxes like Fig. 10 may be

Fig. 10.



used for storing the collection, they should meas-

ure 10x14x3 inches if single, or 10x14x4 inches if double; or they may be made in the form of books. In any case the drawers or boxes should be lined with a layer of sheet cork, with a sheet of white paper stretched over it. Whatever your collection is stored in, keep it from the light. Do not put camphor into the drawers, for it will cause many of the Lepidoptera to *grease*; use a little benzine, crude creosote, or still better, disinfecting cones like Fig. 11.



comparison.

Arrange the insects in their natural order, if possible showing three specimens of each variety (the male, female and under side), and label each one with its name and the date and the locality of capture. By this means the name and characteristics of each insect are at the same time impressed upon the mind and naturally associated one with the other, thus aiding the memory and facilitating the identification of species when a collection is not at hand for

A Re-discovery for Texas.

BY PROF. W. W. COOKE.

Forty-four years ago, Mr. J. P. Giraud published an account of sixteen new species of birds, which he claimed had been taken in Texas. Considerable doubt has been expressed by ornithologists in regard to the correctness of this claim, but the recent great extension of our knowledge of the *avifauna* of Southwestern United States is tending to inspire confidence in Giraud's record.

The present standing of his sixteen species is as follows: Mexican White-throated Wren, *Catherpes mexicanus*, (*Certhia albifrons*, Giraud). Is now well known as a bird of the western border of Texas, along the Rio Grande.

Olive-headed Warbler, *Peucedramus olivaceus*, (*Sylvia olivacea*, Giraud). No specimens are known from Texas except those taken by Giraud, but Mr. Henshaw succeeded in finding the species in Arizona.

Black-throated Gray Warbler, *Dendroica nigrescens*. Sclater supposes that the *Sylvia halskii* of Giraud is really the female of this species, which has no other record from Texas. But there is no reason for thinking that it does not occur there, since it is a common migrant throughout the Rocky Mountains, west of Texas, and its present known range extends almost to the western border of the State. Moreover, a closely related species, *D. Townsendii*, which has a nearly similar range, has, within the last few months,

been taken for the first time in Texas by Mr. Lloyd at San Angelo.

Painted Redstart, *Setophaga picta*, (*Muscicapa leucomus*, Giraud). Though Giraud's Texas record has not since been checked, both Mr. Henshaw and Lieut. Bendire have had the good fortune to secure specimens in Arizona.

Red-faced Warbler, *Cardellina rubrifrons*, (*Muscicapa rubrifrons*, Giraud). This species has also been taken by Henshaw in Arizona.

Red-bellied Redstart, *Setophaga miniata*, (*Muscicapa derhamii*, Giraud).

Red Warbler, *Ergaticus ruber*, (*Parus leucotis*, Giraud).

Brasher's Warbler, *Basileuterus culicivorus*, (*Muscicapa brasheri*, Giraud).

Bell's Warbler, *Basileuterus belli*, (*Muscicapa belli*, Giraud).

Blue-headed Euphonia, *Euphonia elegantissima*, (*Pipra galericulata*, Giraud).

These last five species are all now known as birds of Mexico across the Texas line, but no specimens since Giraud's time have been taken on this side of the Rio Grande.

Audubon's Oriole, *Icterus auduboni*, (Giraud). This species was not only added to the fauna of the United States by Giraud, but was by him for the first time made known to science. It has since been found to be a regular visitant to southwestern Texas.

Giraud's Shore Lark, *Otocorys alpestris Giraudi*, (*Alauda minor*, Giraud). After it had rested for many years as a synonym of *var. chrysolema*, Mr. Henshaw has at last determined that the *Alauda minor* of Giraud is a tenable variety found only in Texas. Here we have a very strong argument in favor of Giraud's good faith.

Giraud's Flycatcher, *Myiozetetes texensis*, (*Muscicapa texensis*, Giraud). No other record has been made of its occurrence in the United States.

Lawrence's Flycatcher, *Myiarchus lawrencei*, (*Muscicapa lawrencei*, Giraud). Has since been taken by Stephens in Arizona.

Fulvous Flycatcher, *Empidonax fulvifrons*, (*Muscicapa fulvifrons*, Giraud). The typical form is Mexican, occurring just across our border. A slight variety (*pallidescens*) is not uncommon in New Mexico and Arizona.

So far we have spoken of fifteen of Giraud's sixteen species, and we find that of these, seven have not since been taken in the United States: five are now known from Arizona or New Mexico, and three are well known from Texas.

We have now to add the late re-discovery in Texas of the other Giraud species, thus fully vindicating Giraud's good faith so far as this species is concerned.

Rev. I. B. Henry, of Mason, Tex., has had the good fortune to secure there several specimens of the Mexican Goldfinch, *Astragalinus psaltria mexicanus*, (*Fringilla texensis*, Giraud), and he has also determined that they are not accidental visitors, but are a regular and not uncommon species in his vicinity. He has noted their arrival for several seasons, the first one in 1885 having come May 20th. After identification by Mr. Henry and myself, a specimen was sent to Mr. Ridgway, who kindly compared it with Giraud's type and finds that it agrees more closely with Giraud's bird than with specimens from Mexico. Could any better or stronger proof be desired that in this case, at least, Giraud captured his specimen actually in Texas.

Here, then, we have a species taken in Texas in 1838; no other trace of it found there for over forty years, and then re-discovered. Not, however, as would be expected, as a casual visitor to the extreme western border of Texas, but a regular Summer resident at a place two hundred miles east of the Rio Grande.

California Mottled Owl.

(*Scops asio bendirii*.)

BY W. OTTO EMERSON, HAYWARDS, CAL.

It is my purpose to give here my observations, extending over the last six years, on this little *Scops*. Except the Barn Owl, which takes the lead, it is here the most common of the family. On a still evening, Mottled Owls may be heard at all times of the year calling and answering one another from fences and posts, also from the dead limbs of the many trees along the creek and on the hillside.

As I write this evening, one is giving his hoo-to-to-to-to-hoo in fast running notes repeated two or three times. Their principal enemy is the small boy whose depredations I have frequently had cause to lament. The past season I found three cosy homes of *Scops* broken into and the eggs smashed by some boy's long stick, because he could not get them out, the holes being over three feet deep down the Oak limbs.

Knowing that the Barn Owl likes nothing better than to get into some Pigeon's cot or the gable end of some barn, it occurred to me that perhaps these persecuted little Owls might make use of a home prepared for them in some quiet, shady place. I therefore nailed up three starch boxes on some Australian Gum Trees in a small grove. I made a hole at one end facing the north and placed some leaves and sawdust at the

bottom of the boxes. This was on March 14th, 1885.

I did not visit the boxes until April 10th. Rapping one of the trees before going up, something very like a cat's head appeared at the hole in the box, showing me that one of the boxes had been appropriated. From the cat-like appearance of their heads, the boys call them "Cat Owls," in this neighborhood. Mrs. Scops blinked at me three or four times, then flew to a tree close by. On looking in the box I found two eggs. On the 12th, there was a third. Incubation was not commenced until the 17th, no more eggs having been laid. The male was not seen but once during incubation, and that was once when the female leaving the box, I went up to examine it. She gave a quick, short call and the mate came in an instant, and began to snap his bill at me from a limb over head. I kept a watch on her sitting, and she got so that she would come to the hole when I tapped on the tree and look down until I left.

On looking in the box May 10th, I found three white, downy Owllets, one not quite dry. Mrs. Owl seemed to think I was getting too free with her household, for when I took one out she flew about, calling the mate. They both came near, snapping their bills all the while. The young could not hold up their heads, their eyes were very round and full but not open. There was down to the toes, feet a light pink. On taking them out they gave a slight peep, like a young chick just hatched. They grew very fast and in eight days commenced to show signs of pin-feathers, and had strength enough to snap their bills. About this time, May 18th, I found one of the young with its head missing, which I could not account for unless food got short, and rather than to see them all starve the birds fed one to the others. Next day the body had disappeared. I put all the remains of birds skinned, on the top of the box. They made away with it and grew very fast. By the 25th, fifteen days after hatching, they had their eyes open. They would now back up into the corner in a bunch, snapping their bills on my trying to get them out. By the 20th they all had pin-feathers of the grey plumage, with white down still showing on the ends of the feathers. The old ones did not now stay around. They were still in the box on June 14th, when I went out to the "Farallon Islands." So I don't know how they got on after that.

There is very little difference in the eggs of the California Mottled Owl and Little Screech Owl. In three sets of the former, three in each set, and a set of three and four of the latter be-

fore me, the set of four is somewhat larger than any of the five sets, measuring: Sets of four, 1.53x1.25; 1.50x1.28; 1.55x1.31; 1.53x1.27. Set of three, 1.45x1.20; 1.40x1.22; 1.42x1.22. The above being Screech Owls. The following California Mottled Owl, measuring: Set B, of three, 1.44x1.18; 1.42x1.20; 1.28x1.20. Set S, three, 1.42x1.21; 1.40x1.16; 1.42x1.16. Set E, three, 1.37x1.20; 1.38x1.22; 1.42x1.16. All are of the same glossy, crystal white peculiar to the Owl's eggs.

I give here a record of my first sets for each season, during six years: March 18th, 1880; April 24th, 1881; April 11th, 1882; March 24th, 1883; May 13th, 1884; April 12th, 1885. It will be seen that the year 1884 was later than the rest, the Spring being very wet all the hollows in the trees were filled with water.

I found one the past Spring that had taken up quarters in an old wood rat's nest placed on a limb of a Bay tree, some thirty feet from the ground. A large mass of dead leaves from the tree had been put together, and a hollow formed in the centre, lined with feathers of fowls and birds.

I took a young Mottled Owl from some boys two years ago, and put it in my greenhouse with a young Sparrow Hawk. They seemed to get on well together except in feeding, when the young Hawk wanted all the attention. When he got his portion he would take it in his claws, fly down in a corner on the long table, and spread his wings as though to hide his food. The Owllet would snap at his meat when a piece was held up to him, make a grab, shut his eyes and swallow it down with great satisfaction! The hot weather was too much for them in the hot house, with all the windows out, and I found them both laid out one afternoon.

"The Cedar Bird."

(*Ampelis cedrorum*, Vieillot.) Gray.

BY FRANK R. RATHBUN.

This bird belongs to the family of Waxwings, of which we have but two examples on this continent, the other being the Bohemian Waxwing or Chatterer, a somewhat larger bird, but strikingly similar in many respects. The Cedar Bird is a true tramp, breeding anywhere in his peculiar lazy way, and roaming from Florida to the Red River country. He is not, however, one of the diffident and solitary kind, but of a social cast, and may nearly always be seen consorting with members of his own kind. Whenever his "dreary whisper," his "wheezy" whistle is heard, a superficial search will almost invari-

bly find an encampment of the brotherhood. We have called him a true tramp, but we might qualify this statement somewhat by dubbing him a tramp of the gypsy clan, so nomadic and erratic are his movements and visitations. The heat of Summer and Winter's rigor have no depressing influence upon this indomitable bird. His characteristic fearlessness and independence is stamped upon his features, and evidenced in his striking profile. His sinister aspect, due to its peculiar markings, has always seemed to me to be surrounded with an eerie halo, with an atmosphere suggestive of the weird which is inexplicable. The sun neither incites nor delays his wooings, for sometimes the first young of the year are not seen until the month of August. In fact, he seems to take so much pleasure in his gregarious habits as to be unmindful of his domestic affairs.

The Cedar Bird is known and recognized as the Carolina Waxwing and the Cedar Waxwing. He also has such local names as the "Ring-tail" and the "Wax-bird," but is universally known in the north as the "Cherry Bird." The first name has been given him from the yellow color which tips the ends of his tail feathers; the second, from the peculiar red and horny appendages of his inner wing quills which much resemble red sealing wax; and the latter, for his love for "cherry-ripe," so tantalizing to the horticulturist.

This bird is of a very social, amiable, and very affectionate disposition. I had the good fortune to become intimately acquainted with a pair of them the past season. They had selected for their nesting place the bough of a soft Maple tree, some twelve or fifteen feet from the ground. The tree stood close to the sidewalk of the street, and immediately in front of my gate. From my breakfast table I could easily watch their labors. The situation was very public and the street a familiar thoroughfare of the boys and girls as they went to and from the public school. The birds had but one object in view, apparently, and that to build, brood and bring up. I often stood immediately beneath the scene of their toil, without for a moment inspiring fear or interrupting their labors. That they saw me was evident, for as they came to the spot alternately with materials, they would pause for an instant and peer at me with their gypsy eyes from beneath their sable frontlets, and seemingly satisfied that it was *only me*, proceed with their work of construction. I could but fancy they knew me and sought my protection, so trustful did they seem. When the female began to incubate her liege seemed very attentive and kind, bringing food and occasionally cheering her labors with a low whisper. Their bliss, however, was interrupted after a few days,

by the inherent destructiveness and mischief of some ruthless boy, who had, as I was led to infer from the scattered embryos and shells upon the walk beneath, either stoned or poked them from their nest. The pair disappeared and were never seen more.

The horticulturist has long eyed these "cherry birds" with suspicion, if not with hostility, for their peculiar fondness for garden fruits and cherries. They are, however, very beneficial birds, much more so than injurious, and for this reason should be protected and tolerated. They destroy vast numbers of harmful bugs, caterpillars and canker-worms. Occasionally they awake from their lethargic moods and launch forth on vigorous wing after flying insects.

While the Cedar Bird is to some extent a Spring and Autumn migrant, he does not hesitate to brave the rigor of our northern winters, where he collects in communities amid the thicket and groves. There they feed on various berries, especially those of the Cedar and other small clinging fruits. Occasionally they sally forth from these retreats and enter the cities and villages and feed upon the berry clusters of the ornamental Mountain Ash to repletion, sometimes spending the entire day in the tree. This is not unusual, for I have observed them thus for successive Winters.

The plumage of the Cedar Bird is strikingly soft and smooth, and the colors of the body are full of rich and insensible blendings, which shade from an ashy color on the rump through cinnamon to a rich purplish cinnamon on the breast and head; and through yellowish or yellowish buff on the belly, to the white of the under tail-coverts. He has a prominent crest of cinnamon drab and a sinister stripe of velvet black across and above the eyes, which is brought out in strong relief against the prevailing body color, by a marginal line of purest white above, and a spot of the same color at the lower base of the bill.

The inner wing quills and occasionally the tail feathers—which are each finished off with a touch of chrome yellow—terminate in peculiar horny-like appendages strangely suggestive of red sealing-wax. Sometimes these singular adjuncts are wanting, usually in the young birds.

This bird is from six to seven inches in length, and the eggs, which are laid in a carefully constructed nest of mosses and various fibrous materials, are from three to six in number, and have a pale or livid bluish ground sharply and thickly dotted and blotched with blackish spots. Average specimens of the eggs measure about eighty-two by sixty one hundredths of an inch.

Canada Goose in Nova Scotia.

BY J. MATTHEW JONES. (*Forest and Stream.*)

A few flocks undoubtedly pass the winter on our Atlantic coast, for almost annually during that season specimens are shot by persons along the shores, and therefore it is somewhat difficult to ascertain with certainty the date of the arrival of the southern migrants on their way north in Spring. A flock of forty were observed Feb. 23, 1870, at Glace Bay, Cape Breton, going north. This is the earliest date we have recorded of their migration in a northerly direction. The unusually high temperature which prevailed over the Maritime Provinces during that month, had doubtless much to do with this early migration, if such it can be called, as the flock which had probably wintered on some part of the Atlantic coast, was enticed by the absence of ice from shore waters, as well as the broken state of ice in the Gulf of St. Lawrence, which was remarkable during that Winter, to venture on their northern journey so early. In the early part of February, 1871, a small flock was observed outside Ship Harbor, Halifax county, and one shot and brought to town. Again, in January, 1879, a flock of twenty frequented the coast between Lawrencetown and Cole Harbor, Halifax county. The most remarkable occurrence, however, as regards the appearance of Wild Geese here in Winter, took place on Dec. 23, 1883, a most inclement day, when the thermometer fell to 15° below zero, with a stiff northerly gale, a flock of Wild Geese passed over Halifax city, steering for the entrance to the harbor. Again, as late as Dec. 13, 1884, a flock of thirty passed over King's county, close on the Bay of Fundy.

From these facts and others with which we could supplement them, we may conclude to a certainty that a few flocks of Wild Geese do winter here.

Although, as we have before remarked, owing to these stray flocks wintering with us, and moving from one point to another, it is difficult to ascertain the true date of the arrival of the migratory bands from the south; yet we venture from our record of observations made during the last twenty-four years to state that the earliest arrivals may be set down as usually occurring from the 6th to the 12th of March; but should the temperature be lower than ordinary at that period, and the weather be severe, the migration is delayed until milder weather occurs. Sometimes it so happens that a week or ten days of unusually mild weather occurs early in Spring, which has the effect of bringing to our province the leading columns of migrants, and the sudden change to a low temperature again which frequently takes place on such occasions and that for a prolonged term, proves most disastrous to the Geese. In the last week of February, 1880, the weather was remarkably mild, as may be imagined when we state that flies were observed buzzing about in the sun in sheltered spots on the 25th of that month. This had the effect of bringing up the Geese. On the 26th of March began a cold spell which lasted off and on for a fortnight, accompanied by snow storms, freezing up the country as in the depth of Winter. The poor Geese, unable to find food, were reduced to great extremities and became so weak and tame that numbers were killed by boys with sticks; but when killed were hardly worth having, so emaciated had they become. In the Spring of 1882 the Geese also came up too soon to proceed north and were obliged to remain with us even to the end of April, for the St. Lawrence was covered with ice, and the coast of Prince Edward's Island as late as the 20th of that month, according to a local paper, had an ice belt even on its northern shore "extending at least eight miles out without a flaw or crack, thirty inches thick, and in all respects as safe as any day during the Winter."

The numbers of Geese which pass over Nova Scotia vary greatly, in some seasons not a tithe of the usual quantity being observed. May not this be attributed to the Geese sometimes preferring to make their journey north a few degrees to the westward to escape the storms of the Atlantic coast which are occasionally very severe and continuous about the time of their migration? It is very rarely indeed that the Geese pass over this province on their migration south in Autumn, and we have only recorded a few instances of stray flocks being observed to do so.

How far beyond the latitude of Hudson's Bay this species proceeds in Spring to breed is difficult to ascertain from published reports; but it is very probable they tenant all the waters of the Churchill and Mackenzie districts to the borders of the Arctic Sea, if not still further north. According to Barnston it is plentiful during the whole Winter in mild seasons on the Pacific coast of British America.

Brief Notes.

NESTING OF THE WORM-EATING WARBLER, (*Helminthoherus vermicivorus*), IN CHESTER CO., PA.—Though by no means a common resident with us, the Worm-eating Warbler is frequently met with in favorable localities. It frequents the most solitary parts of the woods, making but little noise that would attract the attention of passers by, and might easily be overlooked.

In such localities the nest may be looked for. Three of them found by the writer, two several years since and one on June 9th the present Summer (1885), were all located almost precisely alike, and all within a radius of a quarter of a mile. They were situated on steep, wooded hillsides, sunk into the ground, and so overhung and concealed by dry leaves as to make it impossible to detect them without the birds betraying the presence of the nest.

The nest found the present season contained five eggs of the Warbler, and one Cowbird's, all well advanced in incubation. The birds evinced great uneasiness at my presence, coming to within a few feet, and offering a good opportunity for identification without my being compelled to shoot them. The nest outwardly is constructed of dry leaves, noticeably those of the Beech, very loosely put together, then fine rootlets and stems, and finally the inside lining is made of the fine flower stalks of the Hair Moss—*Polytrichum*.

This last peculiarity existed in all three of the nests, and would, I think, alone be sufficient to identify the species. I would like to know the experience of other collectors with regard to this circumstance.

The eggs, five in number, are of a clear glossy white ground, spotted more abundantly toward the greater end with varying shades of brown, similar in size and shape to the Prothonotary Warbler, (*Protonotaria citrea*).—*Thomas H. Jackson, West Chester, Pa.*

VIRGINIA RAIL NESTING IN CALIFORNIA.—I am able to place on record the first instance (to my knowledge) of the nesting of the Virginia Rail on the Pacific coast. On April 3, 1885, I found a nest containing seven eggs, partly incubated. The nest was placed in a lot of wild parsnip, burdock and water grass, about sixteen inches from the water, in a small swamp fed by springs rising from the bottom, not 500 yards from the window where I am now writing. The nest was neatly woven of water grass around the weed stalks. On first appearance it looked like a nest of the Red-shouldered Blackbird, as they breed in the swamp. I should not have taken any notice of it if the little Rail had not made herself known by sharp, cackling notes on leaving the nest. It measures across the top $7\frac{1}{2} \times 6$ ins; depth inside $2\frac{1}{2}$; height over all $4\frac{1}{2}$ inches. The eggs do not differ in color or form from the Atlantic coast specimens in my collection.

CORRESPONDENCE.

Mr. Emerson writes us that a small Grey Owl was caught on the steamer from San Francisco to the Sandwich Islands when two days out from the former place. He asks whether any other record exists of Owls being seen so far at sea.

M. M., Baldwinville, Mass.—It is our opinion the Fox is what is known as Cross Fox. Wholesale value of skin, tanned, about \$3. Mounted Foxes such as are shot in your State, are worth from \$8 to \$12.

The Crown of the Kingbird.

In connection with the current discussion in your natural history columns in regard to the use of the coronal decoration of the Kingbird and other species, permit me to quote from a paper written by me in January, 1883, and published in the July number (of that year) of the "Journal of the Cincinnati Society of Natural History," viz.: "A List of the Birds of Bardstown, Nelson County, Kentucky."

"107. *Tyrannus carolinensis* (L.) Temm.—Kingbird; Bee Martin. An abundant Summer resident; arrives April 20th. Several years ago, in May, I saw one of these birds occupying an exposed perch on a Pear tree in bloom, about which many bees were darting. Several times I observed that he caught the insects without leaving his perch, by quickly turning his head and grabbing them. My attention being thoroughly aroused, I noticed that many of them seemed to fly directly toward the bird, the majority appearing to 'shy off' a short distance from him and change their course, but very few escaped him. Did the thrifty *Hymenoptera* mistake the fully displayed crimson crown for a flower? Once since I have observed the same phenomenon."

In a recent edition of this paper, entirely rewritten, however, published during September by the Kentucky Geological Survey (a copy of which I forward to you), the following additional remarks are added, page 33:

"Mr. C. C. Nutting, who has spent considerable time studying the birds of Costa Rica and Nicaragua in their native haunts, states that he has seen *Muscivora mexicana* perched upon a twig and waving its curious and brilliant fan-shaped crest after the manner of a flower swayed by a gentle breeze, and thus attracting insects within reach."—*C. W. Beckham in "Forest and Stream."*

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No. 12.

Mississippi Valley Migration.

BY PROF. W. W. COOKE, BURLINGTON, VT.

Since the last number of the O. and O. appeared, the American Ornithologists' Union has held its annual meeting, and mapped out the work for next season. The work on migration will be continued next Spring, and the committee are so well pleased with the notes collected this year that little if any change will be made in the plans, instructions or schedules. There is still room for and need of many more observers, and all who are willing to aid, should send in their names to the Superintendents of their respective districts. Before Spring migration commences, schedules will be sent to each observer, and it is specially to be desired that the observers in the south, make full notes throughout the entire Winter season.

The report of Migration in the Mississippi Valley during the Spring of 1884, is now passing through the press and will be distributed during the Winter.

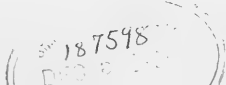
SPRING OF 1883.—Concluded.

COWBIRD, (*Molothrus ater*). Canton, Miss. Summer resident. Fayetteville, Ark. I think it is here a transient, as I have never seen any in Summer. Saw a single bird February 20th, and a small flock February 27th. Are now, March 1st, moving north. Anna, Ill. According to Ridgway, resident. St. Louis, Mo. First, seen on April 5th, and the height of the season was on the 12th. Manhattan, Kans. First, April 3d, one seen. By April 29th, both males and females were in full Summer numbers. Liter, Ill. February 27th, first, both male and female. Grand View, Ia. Saw some in Winter, but they may have been female Redwings. Jefferson, Wis. On April 21st, first saw one flock of about forty males and females. The bulk of the species arrived on April 28th, and on May 12th it was the height of the season; about five hundred seen. May 19th. Just about in Summer numbers.

COMMON CROW, (*Corvus frugivorus*). Duck

River, Tenn. Winter resident. On March 5th, in countless numbers. Fayetteville, Ark. Resident in large flocks. Anna, Ill. Resident, spending the Winter in the bottom lands, and especially in the vicinity of swampy lakes. While I was camping out last Winter, every morning long straggling flocks would go over camp, that would take an hour to pass. They were feeding largely on pecan nuts. St. Louis, Mo. Resident. Roosting by thousands in Winter among the Willows opposite St. Louis. On March 14th, only a few were seen in the lowlands, where they had been very numerous two weeks before. Manhattan, Kans. A very common Winter resident, but never seen in such numbers as congregate about St. Louis. March 31st. Six nests with full sets. April 7th. Five more nests to-day. April 14th. Four or five nests, one with seven eggs. Liter, Ill., February 26th. First, and on March 8th, fifteen seen in a flock. Osceola, Ill. Building nests April 9th. Racine, Wis. First, March 1st. Jefferson, Wis. Winter sojourner. About half a dozen wintered with us and were seen every few days. A few more passed through in early Spring, but no larger flock than a dozen was seen at any time. Two full sets were found April 7th. [There seems to be a tract of country in the vicinity of Ripon and Green Lake, Wis., which is shunned by this species. Though but sixty miles north of Jefferson, and the same character of country, less than a dozen Crows were seen there in as many years' residence and collecting. None were ever known to Winter. There was one time when for five years not a Crow was seen.] Waukon, Ia. First, one February 25th. Not common here at any time of year. Mitchell, Ia. Seen every week during the Winter. Hastings, Minn. First, two seen March 4th. Pine Bend, Minn. First, March 16th. Elk River, Minn. First, March 2d. Argusville, Dak First, April 16th.

BLUE JAY, (*Cyanocitta cristata*). Duck River, Tenn. A hundred and twenty seen on April 1st, in a five mile walk. Anna, Ill. Resident. One



of our most familiar birds both around civilization and in the woods. Like the Crow, they are fond of pecans, and I think they sometimes store up food in crevices in the bark of old trees. I have also seen them picking open acorns. St. Louis, Mo. Resident. Generally found in troops of from five to seven. On April 27th, twenty were seen in a flock on wing, and again on May 1st. Manhattan, Kans. Very common resident. Jacksonville, Ill. Commencing to build March 2d, and taking the sticks from a last year's nest. Coralville, Ia. May 4th, a nest with one egg. Mitchell, Ia. No Blue Jays wintered here, that I know of. They commenced to return about April 27th, and large flocks passed over. Elk River, Minn. Resident. Thirty-three were seen February 15th, in an eight miles walk. On May 29th, a nest with eggs of a dull cream color with faint spots not so thick as common.

GREAT-CRESTED FLYCATCHER, (*Myiarchus crinitus*). Anna, Ill. First was heard on April 17th. Were numerous and noisy April 30th. St. Louis, Mo. First saw two on April 17th; they were silent. On April 20th the bulk of the species came. Manhattan, Kans. First, May 3d. Liter, Ill. First, May 2d. Des Moines, Ia. First, May 5th. Polo, Ill. First, May 20th. Jefferson, Wis. First saw one on May 12th, and on the 19th one more. Only about a dozen seen during the whole Summer.

WOOD PEWEE, (*Contopus virens*). St. Louis, Mo. On May 5th, first saw several; calling. Manhattan, Kans. First, May 30th. Racine, Wis. First, May 16th. Jefferson, Wis. On May 26th, was the first I saw, though I think it came long ago. Waukon, Ia. First, April 17th. (?)

NIGHT HAWK, (*Chordeiles popetue*). St. Louis, Mo. First, seen on May 15th, and also on the 16th and 18th, when there were a great many going north; numerous along the border of the woods. Manhattan, Kans. First, April 14th. Griggsville, Ill. First, (?) May 25th. Coralville, Ia. First, May 7th. Polo, Ill. First, May 11th. Jefferson, Wis. First, saw one on May 21st, and on the 31st found fresh eggs. Argusville, Dak. First, May 29th.

GREAT BLUE HERON, (*Ardea herodias*). Fayetteville, Ark. A scarce Winter resident along streams. Anna, Ill. Remain only in mild Winters. Manhattan, Kans. First, April 28th. Liter, Ill. First, April 2d. Polo, Ill. First, April 20th. Jefferson, Wis. First, April 11th. Mitchell, Ia. One male seen on March 25th. Elk River, Minn. Four seen April 7th, were the first. [A pretty irregular record.]

AMERICAN BITTERN, (*Botaurus lentiginosus*).

Fayetteville, Ark. First, March 31st. Anna, Ill. Resident, according to Ridgway, in mild Winters. Manhattan, Kans. First, (?) May 12th. Kansas City, Mo. First, March 28th. Liter, Ill. First, April 2d. Elk River, Minn. First, April 19th. Argusville, Dak. First, April 22d.

The Social Life of Arctic Birds.

BY THE LATE DR. ALFRED E. BREHM.

(*Popular Science Monthly*.)

"When the great architect of the universe had finished his favorite star, the earth, Satana aspired to destroy it. From the seventh heaven he slung down a great stone toward the blooming earth; but an archangel, witnessing the wicked act, flew down faster than the falling rock, and turned it aside. The stone fell away up in the Northern Sea, and was broken up. The fragments scattered on every side and formed cliffs, some of which sunk in the deep, while others rose black out of the waters. God in his infinite mercy pitied the bare devil's rock and made it fruitful." Thus runs an ancient Lap legend. The rock is Scandinavia; the fragments are the innumerable islands that surround it; and the fiords are the clefts between the larger stone and the fragments. One should have seen the country, rowed through the fiords, and gone down the icy mountains to the lakes and bays, to appreciate the appropriateness of the Saga.

Scandinavia is an Alpine country, and has, like Switzerland and the Tyrol, majestic glaciers, musical, dancing mountain brooks, and strong rivers rushing over the blue slopes which are reflected in the transparent dark lakes. High up among these lie the prettily poised dwellings of the men, like Eagles' nests stuck to the rocks. To make the similarity with the Swiss Alps complete, the green meadows are also not wanting in Scandinavia; and, while the northern mountains do not resound with the exultant jodel, joyous, fresh, melodious songs may be heard in the valleys and on the heights. The difference between Switzerland and Scandinavia is nevertheless great, even if we only consider how the deep sea cuts into the land and forms large bays which receive, from the shadows thrown upon them by the dark surrounding rocks, a mysterious yet not fearful aspect.

The fiords of Norway are remarkable, but they are not the most peculiar feature of the country; this is found in the innumerable islands which rise more than a thousand metres above the sea, or, planting their roots in the boundless deep, are visible only at low water. These islands are

charming in the highest degree, and their peculiar beauty approves itself when the sun is resting below the horizon at midnight, and only a breath of twilight sweeps over the masses overflowed by the water. One might then well believe himself in a scene of enchantment.

The farther the traveler advances beyond the polar circle toward the north, the larger and more comfortable are the houses, while in the south, where the population is denser, they are of slighter construction. Yet no furrow is turned, no scythe is swung there; the sea is the field from which man derives his living. At the parting of day and night, when the sun goes away for months, the men sail recklessly in their boats and canoes to their anchoring places far up in the north, and their spacious houses are quickly filled with guests. Obeying the resistless drift, come hosts of fishes out of the deepest deeps of the sea, so that the net cast for them mocks the strength of the Herculean men, or is torn under the burden. The throng of the foolish fish is so dense that an oar pushed perpendicularly through it remains upright. Millions are caught, and millions go on, so that there is no sign of a decrease in the number. This migration of the fishes reaches its extreme point at about Christmas time. No pencil could reproduce the picture which the polar sea exhibits at this season. Hundreds of craft, manned with stalwart fishers, are being incessantly filled with speckled prey; as far as the eye can reach, nothing but fish, which crowd and press upon one another to get to the breeding place; the massive glaciers and rock-built shores in the background, and, as illuminants to the scene, the ghostly moon and the crackling northern lights. All this time there is also twilight on the southern horizon, and toward February a narrow strip of the sun shows itself again, gradually to rise higher. With the first appearance of day the fishes begin to sink slowly in the fathomless depths. As the sky becomes brighter, the sea and its bays become more quiet. The boats cease to glide over the surface of the waters, the fishermen go home with their spoil, and the northern world lies silent, basking in the beams of the returning sun. But this quiet only lasts for a few weeks, when new noisy, swarming hosts come to the islands. They are the birds, which come up from the sea to the land. It is a deeply poetic trait in the lives of these creatures that only two causes determine them to seek *terra firma*—the power of love and the approach of death. The sea bird, weather proof, lives on the sea. He hunts his food by diving, swinging over the billows, and sleeps and dreams with his head hidden under his wings. But there comes a time

when the earlier sunbeams kiss the northern islands; then he is mightily moved in his soul, and hastens to the coast to celebrate there his annual wedding. And, when he feels that death is near, he swims with his feeble limbs back to the place of his birth, there to close his life. It is the same feeling that inspires in aged men that ardent desire to return to their old home to die and be buried there. To the naturalist who goes to the north to study the ways of the birds this trait in their character is of peculiar interest. Of one of the tribes of these colonists of the northern bird mountain I must make particular mention. It is the Eider Duck, the producer of down. It belongs to the family of the Ducks, and forms, so far as bodily stature is concerned, one of the largest species of the group. The plumage of the male is handsome and brilliant. In it black, red, ashen-gray, ice-green, white, brown, and yellow are mingled with splendid effect. His head and back are snow white, his neck is rose red, and the lower part of his body is deep black. The female is less richly colored, in a modest garment adorned with gray and black spots and stripes. The Eider Duck is a real sea bird, and is excelled by none of its fellows in diving, while no other bird is more awkward in flying and helpless in walking. On the ground it moves with a toilsome waddle, stumbles and falls flat; and it greatly prefers the fluid element to the solid land. The birds generally live during the Winter in large flocks on the open sea, and feed themselves with shell fish which they bring up from the bottom. But, as soon as the Spring sun begins to shine over the waves, the drake feels newly awakened the old love in his heart for his mate, and he renews his wooing. One pair after another leave the host and swim steadily toward the land. This wedding journey toward the breeding place offers a pretty picture of conjugal life. From the moment when the pair have found one another again there rules only one will, that of the Duck, to which the male yields fully and without wavering. Quite noticeable are his courteous attention and tenderness toward his spouse, which Madame Duck takes, as matters of course, in calm dignity. She steadily makes toward the shore, and finally lands, hardly heeding the cautions of her mate, whose instinct, sharpened by the experiences of former journeys he may have made, prompts him to beware of the devices of men. Loyal he waddles into the country, and follows her in her interminable tours while she is looking for a suitable nesting place. Madame shows an exceedingly dainty taste during her explorations, carefully examining every bush, shrub, stone, and protected spot,

venturing without fear into the dwelling houses, even into the kitchens and chambers, where, if she finds a spot to her taste, she does not hesitate to take possession of it. Occasionally she will fix her nest in the oven, leaving it to the worthy matron of the establishment to find another place to bake her bread. The thrift of the woman generally gets the better of her vexation, and she lets the fowl alone so as not to lose its down. The nest is quickly built. The foundation is laid with dry grass and straw, after which the Duck strips herself of down and forms with it a thick soft cushioned bowl. The drake follows every step of his mistress during these excursions and preparations, and looks out for her safety, without, however, "lending a hand" in any of her labors. As soon as the eggs are laid he deserts nest and mate and flies off to the sea to join the other males again. Great throngs of these grass widowers may then be seen sailing among the islands, wholly unconcerned about what is going on on the mainland. But we shall see how soon they are driven from this careless life.

The Duck lays from four to eight, sometimes indeed ten grayish-green eggs, and then begins to sit upon them. The Northmen have been only waiting for this time to gather their spoil. Thirty Ducks' nests furnish a pound of down, which can be sold on the spot for thirty marks German, or \$7.50 American money. The eggs are also worth money, and are generally sent to England. A Duck colony of this kind is a capital, the income from which is all clear gain, for the bird feeds itself and costs nothing. As soon as the eggs are laid the Northman appears with a great basket, into which he puts nest and eggs. The Duck is deeply distressed over this unrighteous seizure of her property, and in her inexpressible agony flies out to sea to seek comfort with her mate. Whether he receives her with tender expressions of sympathy or with scoldings for her neglect of his warnings is still an unsolved problem; but it is certain that he becomes tender again toward her, and after a few weeks waddles back behind her to the same bay where she had been so badly treated. She again gathers straw and grass for the new nest; but how about its warm lining? The new down has not grown upon her in so short a time; what shall she do? There is no mother, not even a Duck, that can not find her way out of a difficulty when the question concerns her offspring. Her breast is indeed bare, but her mate still has his full coating of down, and is now obliged to sacrifice it on the altar of affection. He cheerfully adapts himself to the unavoidable, and begins to strip himself. The process does not go on fast enough for the impatient Duck,

and she helps in the work, and both persevere in it till the drake stands out entirely bald. Then he flies away and troubles himself no more about wife and nest, an indifference for which we need not blame him in view of his own forlorn condition. The Duck herself also thinks of only one thing—her brood. She leaves the nest only once a day for a little while in the morning, to take her bath in the sea, plume herself, and get some food; but while attending to these details she does not forget to cover the eggs carefully with down, so as to keep them warm. Danger no longer threatens the brood from man, who generally takes good care of this hatching to preserve the species; but it is likely to come from birds of prey. Under these circumstances the practical value of the Duck's simple dusky speckled coat is fully demonstrated. The color of its plumage agrees so well with that of the ground that it is very hard to distinguish the bird from its surroundings. It has happened to me more than twenty times to be standing directly over a nest and not remark it till I felt a gentle pecking at the feet, which the bird gave me by way of warning that I was approaching too near; for the Duck hardly ever thinks of flying from man during the time of its brooding. I have frequently bent down over a nest, stroked the bird, and felt the eggs without its rising. The most it would do was to snap, as if in play, at my fingers.

A characteristic trait of the Eider Duck is to have as many eggs as possible, whether they be its own or strange ones; it is a trait that is not found to exist to so great an extent in any other being. The sitting birds steal one from another whenever they have an opportunity. It is no uncommon occurrence, when one of them is away from her nest for a little while, for her neighbor to purloin three or four eggs, carry them to her nest, and hatch them out with her own. The robbed Duck discovers the theft immediately on her return, but gives no sign of concern about it, seeming to say, "We will wait till you go away, and then I shall take my revenge." Her time comes at last; and thus no Duck knows whether it is sitting on its own eggs or another's.

The young come out from the eggs at the end of thirty-six days, but do not stay in the nest any longer than till they have become completely dry, when the mother takes them to the sea, which she does not leave till the young have become tired in this their first swimming lesson, and can no longer ride on the backs of the strong waves. It is usually a considerable distance from the nest to the shore, and the chicks are exposed to many enemies in the shape of Hawks, Ravens, and

Gulls, which keep an eager lookout for them. Now the Northman steps in with his protecting hand and comes along with a pair of large baskets, into one of which he puts the young birds and into the other the precious down, while he goes from nest to nest, examining them to see in what ones the brood is ready to be removed. Hence he takes the young ones to the sea, while the mother waddles along behind, well knowing where he is leading her. At the shore he turns the basket over and goes away, leaving it to the old birds to find their own. They plunge into the flock, and each speedily gets as many of the chicks as she can. After a few hours the family bonds are closely sealed again, and each mother has gathered her little ones around her, which she treats with the most tender care, while they in return show the most grateful affection for her. They go with the old ones into the water, crawl around on their backs, and receive instruction in swimming and diving for mussels, the mother in the last exercise going down with a chick under each wing. In the course of eight weeks the young become fully instructed, and are ready to begin the struggle for existence on their own account. Now appears the Herr Papa again upon the scene, when there is nothing more to be done, and proudly conducts the whole company over the open sea to their winter home. Such is the history of the best-known and most interesting of the birds that people the mountains of the North. I have thought it proper to give in brief a clear picture of its habits, because it forms in some respects the central point of the motley, busy company. We will now sketch in broad outline a general picture of one of these bird-mountains.

The Storm Gulls are inseparable from the Eider Duck. If there are ten thousand pairs of Ducks on a mountain, then the number of Gulls nesting there will be at least fifty thousand. They come rushing up in graceful, rapid flight, presenting a pleasant aspect with their snow-white and dark-colored feathers. They are the real but innocent betrayers of the Eider colonies, for where Gulls circle in great numbers around the island one is sure to find nests of down. The host is further increased by large flocks of a kind of Snipe which are distinguished by their clear voices. They are the police of the mountain, the guardians of the safety of the bird-republic; for as soon as they perceive anything that betokens danger, say an approaching boat, they cry out in chorus and give an alarm that instantly sets the whole population in motion. The Gulls immediately send forth scouts which go toward the boat, soaring, screeching around it, swooping down upon it with the speed of an arrow, and often touching the boat-

man with the tips of their pinions. The mass of the army follows the scouts. They come by thousands and thousands, in so thick masses as to obscure the sun. The explorer is forced to come to the shore veiled in this living, fluttering, screeching, rushing cloud. The Ducks, if they are not actually sitting, fly, the Snipes hastily seek the sea, and the Wagtails follow in noisy flight, but the host of Gulls stands firm, screams and bustles and whirls and plunges, as if it could prevent the advance by noise and sham fighting. One may walk the shore and see nothing but birds and nests, and hear nothing but the discordant din of voices, accompanied by the thunderous rushing of thousands of wings lashing the air.

A more quiet picture is afforded by the hill where the Auks brood. They resemble the Eider Duck in shape, except that their bills are sharp and not flat, like those of the latter. There are three species of them, which are distinguished from one another by the length of the bill and its curvature. All three species live and brood in the same places. I was told of a mountain where a million of them had built their nests. I am sure of one thing—that no man has ever seen a million birds, even though he has traveled over half the earth. Doubting the accounts, I visited the described mountain. On a bright Summer day my companion and myself took a boat and rowed toward it, over the smooth, transparent water, between beautiful islands, followed by the screeching of the startled Gulls. High above us on a towering ridge we saw the watchful Ospreys; by our side, on right and left, along the shore-cliffs, the sitting Eider Ducks. Finally we came to the populous part of the mountain, which is from three hundred and twenty to three hundred and thirty feet high, and saw really immense numbers of birds sitting on the ridges. The higher parts of the cone were covered with a brown spoonwort, and as we approached the shore the birds drew back thither, and suddenly disappeared from view as if by concerted agreement. When we had reached the shore and landed, and were wondering what had become of the hosts of birds, we found the ground burrowed all over with holes that looked like common rabbit-holes. We soon learned that they were the entrances to the nest-chambers of the Auks. The holes are large enough to permit the birds to pass through, and then widen on the inside so as to give room for the nest and the two birds. As we climbed toward the height, the tenants first carefully and anxiously peered at us, then slipped out and threw themselves screaming into the sea, which was soon covered, as far as the eye could reach, with birds whose cry resembled the noise of a gigantic surf

or of a raging storm. At last we reached the top of the mountain, where two Falcons that had been soaring over our heads swooped down like arrows into the swimming mass; each seized an Auk in its claws, and then rose slowly toward the clouds. But the sea extended its wide, dark blue, bare surface before the eye, for the white swarm of birds had disappeared, having dived down beneath the protecting waves. After one or two minutes one arose, then a second, and a third, and so on in quick succession, and, as they thus gradually appeared on the surface, they looked like flecks of white foam. With marvelous rapidity the little dots increased, till soon it was only here and there that a strip of water could be seen. The screeching began anew, and the birds arose again from the water and moved toward the heights. We had sat down; the rustling, like that of the surf, and the monotonous cry of the birds, had lulled us gradually into a deep sleep. When we awoke and opened our eyes we could have believed that we were transported into a fairy land. In numbers like the sand on the sea-shore, the Auks were squatting at our feet and down to the edge of the water, and curiously looking at us. We were the giants of the fairy story; they were the dwarfs, who dwelt in the secret caves of the mountain. The millions were there, if one could judge by the eye alone, but it is probable that, on an exact count, they would be many thousands short.

The Auk lives a life of strict monogamy. It is to his beloved old wife, the flame of his youth, that he gives his attentions on every returning Spring. The old Auk is a constant, loving spouse, a pattern of a husband, and it is really a pity that the numerical relation of the sexes is such that not every young male can mate himself, and many are compelled to wander through life in compulsory bachelorhood. Particularly painful is the condition of the solitary one when the pairs go to the mountain in the Spring. What shall he do? Shall he alone or with other morose companions wear out his life on the high sea? No, that would be suicide. He follows the bridal trains to the mainland and has at least a happy company around him, and may always hope that one of the males may perish, and he then in some possible way find favor in the eyes of the widow. The Auks return every year to their old nests, which they readily distinguish, and the young, newly mated pairs build themselves new nests, or take possession of old ones whose owners have gone the way of all flesh. The male keeps watch at the entrance, while the female sets the house in order and lays her single egg, which is sat upon for about three weeks and a half. The female sits twenty-one hours a day, and the male ought to sit

three hours, but he never does it, at least not in the beginning. As soon as the female goes away he rushes after her in a spasm of jealousy, for the young fellows are lurking around in all the corners and at all points. But this neglect of duty by the house-tyrant brings no harm to the egg. The nearest young fellow nimbly slips into the nest, and keeps the egg suitably warm till the mother returns. Shall he not also have a little satisfaction when the others are sipping the joys of life in full draughts? There are no orphans among the Auks. If a pair happen to die, the young fellows will hatch the egg out, or, if the chick is already hatched, they will take care of it. The early instruction of the chick is a matter of patience, time and trouble. As soon as it is dry, the parents take it to a cliff by the sea-shore and spring down, while the young one remains standing above and not knowing what to do in his helpless condition. The old ones call, but he does not follow, for he is afraid of the leap and of the strange element. Father and mother repeat the leap again and again, and encourage the timid one. The young bird follows at last, not venturing upon the leap, but in a kind of desperate mood letting himself fall. As soon as he has touched the swinging wave he feels at home, and begins to swim bravely, the parent keeping by him, so as to give him rest on their backs when he is tired.

A quite different spectacle is presented by those mountains which are principally inhabited by a peculiar species of Gull. To observe one of them I made a special excursion into Lapland. I had at the time a design of writing a book on the life of birds, and had read in some work about Three-toed Gulls that nested in the bird-mountains in such multitudes "that they darkened the sun when they rose, completely covered the mountain when they sat down upon it, deafened the ears when they screeched, and turned the verdure-clad rocks white where they were sitting." There are only three such mountains known—one in Lapland, one in Iceland, and one in Greenland. The one in Lapland, which is much the most remarkable, lies out of the course of the steamer, and we were therefore obliged to charter a special boat to reach it. A storm compelled us to go into a harbor of refuge. When the tempest had abated, about midnight, we continued our voyage. The waves were still high, and single Gulls shot before and around us like dazzling white flashes. All at once, at Cape Svaerholm, not far from the North Strait, there rose before us a great black cliff. It looked like a large marble table covered with millions of little white points that shone like stars. We fired a shot at them, when, as soon as the re-

port had ceased, these became living birds, pure white Gulls, and sunk in a few minutes hastily down to the sea in so compact a throng that I might have thought a snow storm had broken loose and was pouring its immense flakes down from the sky. For a few minutes it snowed birds as far as one could see. The surge rolled wild, but it was the euphonious accompaniment of the rustling of the wings and of the shrieks of the frightened sea-birds. As far as the eye could reach the waves were covered with the foam-born children of the sea, and the cliff and the mountain were as white-dotted as before. Yet these were only the males, which had rushed away on the approach of danger.

Fall Migrants at Raleigh, N. C.

AS OBSERVED BY H. H. AND C. S. BRIMLEY IN 1885.

Olive-backed Thrush, (*Hylocichla swainsoni*). Only one seen this Fall, on Oct. 7th and 21st.

Blue Yellow-back, (*Parula americana*). I rather think this species must Summer here, but this year observed none from the end of May till Aug. 26th, and they were seen from that date till Sept. 29th, but were not as common as in the Spring.

Black-throated Green, Chestnut-sided and Blackburnian Warblers were only observed on Sept. 25, (when one of the first, three of the second and two of the third were procured,) and Black-and-Yellow only on Sept. 24th, (one taken).

Water Thrush, (*Siturus naevius*). Quite scarce this Fall; first one seen on Aug. 17th, last seen on Sept. 29th.

Golden-crowned Thrush, (*Siturus auricapillus*). Arrived on Sept. 4th, and from that time one or two seen about every other day till Oct. 23d.

Black-poll Warbler, (*Dendroica striata*). Arrived on Oct. 1st; became common on Oct. 8th; continued common till Oct. 16th, last one seen Oct. 17th. The Black-polls fed largely on caterpillars while here this Fall.

Black-throated Blue Warbler, (*Dendroica caerulescens*). Three only seen this Fall; Oct. 7th (♀), 15th (♀), 16th (♂).

Blue-headed Vireo, (*Lanius solitarius*). First one seen on Aug. 31st, another on Sept. 25th and two more, the last of the season, on Oct. 25th.

Bobolink, (*Dolichonyx oryzivorus*). Quite scarce this Fall; arrived on Aug. 31st, and after that only seen on Sept. 1st and 9th. Usually rather common both Spring and Fall.

Towhee, (*Pipilo erythrophthalmus*). Arrived Oct. 15th and became common the next day; on the 17th only two were observed, and a few were

seen throughout the remainder of the month and the early part of November.

Black-billed Cuckoo, (*Coccyzus erythrophthalmus*). One was shot on Sept. 23d, the only one observed here by us since May, 1882.

Red-headed Woodpecker, (*Melanerpes erythrocephalus*). Three seen on Sept. 24th, one on Oct. 17th, and a few more during the latter part of October, but the species was less common than usual this Fall.

Rusty Grackle, (*Scolecophagus ferrugineus*). A small flock of half a dozen seen on Oct. 27th, and again on Nov. 2d; this bird is not as a rule common with us, but almost invariably occurs in small numbers in the Spring, and less often in the Fall.

Crow Blackbird, (*Quiscalus purpureus*). The first of the season was shot Oct. 29th, and no more were seen till Nov. 2d, when a flock of about forty were seen. Small flocks were seen throughout the early part of November, but the species never became common.

Wilson's Snipe, (*Gallinago wilsoni*). An unusually early arrival of this species was observed on Nov. 4th. The species usually occurs in small numbers in December, and is not as a rule seen again till March, when it is usually common.

Red-bellied Nuthatch, (*Sitta canadensis*). A single specimen of this species was observed on Oct. 31st, and again on Nov. 1st.

The migrating birds have now (Nov. 15th) all left us with the exception of a few Towhees and Blackbirds. One very late straggler, a Black-and-White Creeper, was captured on Nov. 10th, more than a month since we had recorded (as we supposed) the last of the species.

Our Winter visitors have nearly all arrived now, both varieties of Kinglets being present in large numbers, though the Brown Creeper has been quite rare so far this Winter. Srikes have been unusually scarce this Fall, only two (Sept. 17th and 19th) having been observed so far, while Cedarbirds have added one more instance of the regularity of their irregularity by turning up in small numbers in the early part of November, one of the periods at which the experience of other years has led us to expect them.

American Velvet Scoter in Wisconsin.

I recently obtained an American Velvet Scoter (*Melanetta Velvetina*), near this place. This is the second record of its occurrence in the interior of the State.—C. F. Carr, Madison, Wis.

THE
ORNITHOLOGIST
—AND—
OÖLOGIST.

A MONTHLY MAGAZINE OF

NATURAL HISTORY,

ESPECIALLY DEVOTED TO THE STUDY OF

BIRDS,

THEIR NESTS AND EGGS.

DESIGNED AS A MEANS FOR THE INTERCHANGE OF NOTES
AND OBSERVATIONS ON BIRD LIFE.

FRANK B. WEBSTER, Publisher,

PAWTUCKET, R. I.

Editor's Notes.

Our issue this month brings us to the close of our tenth volume—five volumes of "The Oologist," and five of the "The Ornithologist and Oologist." This period of ten years is a long one for the existence of a Magazine which appeals only to a small class in the community, a class widely scattered and difficult to get at. We have endeavored, with what success our readers must be the judges, to meet their wants and to provide for them an opportunity for the interchange of their observations. What our Magazine lacks is adequate support. For this we have striven so far in vain, but always hoping for an improvement in the not distant future.

This month completes Dr. Morris Gibbs' "Catalogue of the Birds of Kalamazoo County, Mich," also Prof. Cooke's series of the "Mississippi Valley Migration," both of which form permanent records for future reference—the former as it contains a list of the birds of that locality complete so far as now known—the other a series of observations on the annual travels of certain of our best known and most widely scattered varieties. Our best thanks are due to these gentlemen for their continued efforts, as also to our other friends who from time to

time have provided us with articles. It has always been our endeavor to fill our columns with *original* communications, and for these whenever they possess any features which we deem of general interest, we will gladly find space.

I have received many valuable hints from readers of the O. and O. in connection with the articles on Taxidermy now in preparation, also inquiries in regard to them. It is my intention, if possible to give an article on mounting [Stuffing] birds in the January number, one on small animals in February, and complete the series in March and April. After that all the articles together with those on Entomology by Messrs. Wright and Bates, one on Oology by M. Abbott Frazar, which will shortly appear, will be reprinted in book form.

I was induced to give the readers of the "O. and O." the benefit of a first perusal of my notes. I have to acknowledge the receipt of an ingenious stand to hold birds, from E. V. Clemmens, Esq., and an article on preserving badly damaged specimens, by James Speed, Jr., to both of which future reference will be made. Useful criticism in regard to my methods will be gladly recorded. F. B. WEBSTER.

Oology of New England.

It gives us pleasure to announce that a long needed want has a prospect of being supplied. We refer to an illustrated work on Bird's Eggs. Mr. E. A. Capen has been engaged in an undertaking which in itself is of a magnitude well calculated to debar any private individual, except one of more than ordinary skill and determination. From the proofs that are to-day handed to us, we are fully satisfied it will obtain well merited success. With artistic and *natural* skill, he has painted in oil, some three hundred and twenty-three full-size sketches, representing all the species of eggs that are known to have been taken in New England. These have been repro

duced in chromo lithograph [by The Forbes Lithograph Co., which is another guarantee of high excellence] covering 25 plates, size 10x14. In glancing over the sheets, our attention is especially attracted to the one containing the Murres, *Lomvia troile*. It is well known to our readers that the eggs of these birds present the greatest variation. From the dark brown, heavily blotched, to the dark green, with the intermediates of almost white. These are represented by four illustrations, which when compared with the actual specimens can be fully appreciated. The next noticeable plate is that which embraces the Terns, that of the Arctic with its rich shades of brown, does full credit to both artist and bird.

The egg of the Solitary Sandpiper, by almost a chance, finds itself in line. Mr. C. informs us that he could find only *one* set, on record as taken within his limit.

Great care is indicated in selecting typical specimens. Accuracy in color, size and shape together with the bas-relief effect, caused by the tinted background, are just what is wanted by our young collectors.

In addition to the plates, Mr. Capen has compiled a brief and thorough description of each, together with the nests and breeding habits of the birds. While it is intended to cover the birds that breed in New England, it must not be overlooked that this means the common birds east of the Mississippi to a great extent. The moderate rate for a work of this description at which it is offered, we trust will be the means of placing it in every library and in the hands of collectors.

We are glad that enterprises of this kind, are not confined to *the few* and shall look forward to an endorsement that will enable Mr. Capen at no far distant day, to give us a companion volume which will complete that which others have failed to attempt.

F. B. W.

American Ornithologists' Union.

The third annual meeting of the Union was held on Nov. 17 and 18, at the American Museum of Natural History, New York City. Among the members present were Messrs. J. A. Allen, R. Ridgway, W. Brewster, W. W. Cooke, O. Widmann, Dr. C. H. Merriam, A. K. Fisher, H. A. Purdie and E. P. Bicknell. The principal interest of the meeting centered in the discussions which arose over the various papers presented. Mr. Arthur P. Chadbourne presented a series of colored charts, showing the distribution of each species of birds in New England and Eastern British America. A very spirited discussion ensued over the question, whether in coloring such maps, we should be guided wholly by the printed records, or be allowed in some cases to generalize from known habits. It was concluded, that in all but the most common and widely dispersed species, about which there could not be a shadow of a doubt, no color should be put on such charts, beyond that attested by fully substantiated records.

Mr. Bicknell showed a chart, representing in very clear and easily understood symbols, the periods of residence and song of different species at any given place. The method is capable of being extended to any number of localities, and hence to the tabulating of the notes collected by the corps of migration observers. Other methods of tabulating these reports were presented by Mr. Dutcher and Mr. Wheaton. The question being broached of the best methods for keeping field notes, several methods were given, the best of which seems to be Mr. Brewster's card method, according to which the notes are written continuously on cards temporarily bound, and at the end of the season the cards are disconnected and distributed so that those on like subjects shall be together.

The wholesale slaughter of birds for millinery purposes brought nearly every one present to his feet with plans for its suppression. One interesting feature of the meeting was the account by Mr. Brewster of his observations carried on at lighthouses during the season of migration. By means of these observations the speaker had penetrated deeper into some of the secrets in the life of the small night migrating birds than any one else has yet done. His account of what he saw was most entertaining and valuable, and opens a new chapter in the history of our birds.

After a pleasant and very profitable two days' meeting, the Union adjourned to meet next year at Washington.

Practical Taxidermy.

BY FRANK B. WEBSTER.

CHAPTER IV.—SKINNING.

We will select a Bluebird from the lot, and take it to the work room. Taking our medium scalpel, long-nose pliers, fine forceps, scissors and brain spoon, we will proceed with the

SKINNING OPERATION.

Lay the bird on its back. With the fine forceps remove the cotton from its throat, and refill with fresh cotton. Part the feathers right and left, exposing the bare skin on the stomach from the breast bone to the vent, and cut lengthways A. . . . B. [Fig. 1,] with scalpel. Avoid if possible, cutting through the second skin or sack which holds the intestines. [Variation.—In sea fowl the feathers cover the entire skin and the cut must be made through them; it can be done with scalpel or scissors—if with the latter, insert at A and cut along to B.]

Now push the skin from the body to the right till the joint C is exposed; cut it and draw out the leg till you get to where the meat ends, U; cut the meat at this point and strip it off the bone. Taking hold of the foot draw it back in place, the bone will then be clean and loose. [See fig. 2.] Repeat this operation with the left leg; cutting at D, drawing out to U, cleaning the bone and drawing back. Both legs now hang loosely in the skin. Next push the skin from the body to the vent, B, lift the bird with the left hand, stand it on its head end and bend the tail over backwards, and with scissors cut the vertebra between the body and the end or knob that holds the tail feathers at B. . . . B. [Fig. 3.] Use care not to cut the knob V, [Fig. 3,] for by doing so the tail

feathers will fall out; also be careful not to cut through the skin on the back. Just press the scissor points till you have the vertebra between them. There is a joint at this place—an expert will sever it with the scalpel. "*This is the first snag you strike.*"

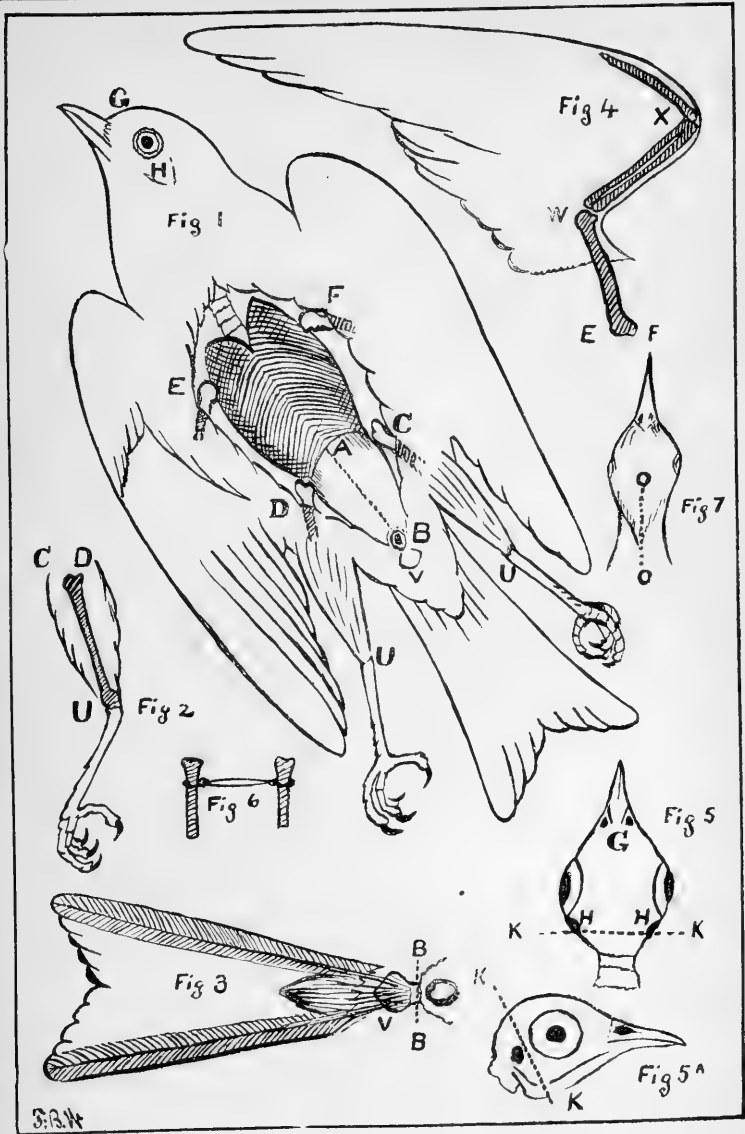
Take the body with the pliers at the place where the vertebra has been cut, hold it firmly with the pliers in the right hand, and with the left thumb and finger push the skin down towards the head, both on back and breast till the wing joints are reached. Drop the pliers. Pliers are only used in handling small birds, where the fingers would be in the way. In skinning very large birds many hang them up by fastening hooks in the body. Medium sized birds require neither. Cut the wing joints at E and F, [Fig. 1,] Without stopping to clean proceed to skin to the skull. Lay the bird down skin towards you, and by using the nails of both forefingers to pull, and at the same time pushing with both thumbs, the skin will slide over the large part of the skull. Work carefully, bear evenly on both sides and be steady. Should the skin break it must be sewed up after the skinning is completed, and before poisoning, by overcast stitches on the wrong side. Then with point of scalpel pick the ear skin from the ear hole H, [Fig. 1,] and cut the skin from the eye, being careful not to cut the eye-lid. Then skin to base of bill, G. [Figs. 1 and 5.] Remove the eyeballs and cut off the skull at K. . . . K [Fig. 5,] at the angle shown in figure 5 A. Draw out the tongue and windpipe, and the body will be separated from the skin. [Poison it and give it to the cat.] Clean the brain from the skull cavity with brain spoon. Next go back to the wing joint E, draw it out to W, and part the skin so as to expose the meat

Explanation of Pen Sketch.

Fig. 1.—Shows bird partly skinned.
A.—End of breast bone.
B.—Vent.
C and D.—Leg bones, second joint from foot.
U—U.—End of same bones.
E and F.—Wing bones—body joints.
G.—Base of bill.
H.—Ear.
V.—End of Vertebra.
Fig. 2.—Shows leg.
C, D to U.—Bone that is left in skin.
Fig. 3.—Shows tail.
B—B.—Place to sever vertebra.
V.—End of vertebra and socket of the quills of the tail feathers.
Fig. 4.—Shows wings.

E to W.—Bone that is cleaned and left in skin.
W to X.—Two bones, cleaned and left in wing.
Fig. 5.—Shows skull.
G.—Base of bill.
H—H.—Ear holes.
K—K.—Place to cut skull.
H—H to G.—Part of skull left in skin.
Fig. 5a.—Side view of same.
K—K.—Same cut as in Fig. 5.
Fig. 6.—Wing bones, E and F to W. [See Fig. 4.] This shows them tied. Use thread for small birds.

The old story of the school boy who made a drawing and wrote the necessary description, "this is a cow," has a moral which should be duly considered by many us.



from W to X [Fig. 4.]; clean the bone E to W, and cut away what you can of the meat from W to X. It is not necessary to take every particle of meat. I leave the cords, they help to hold the wing firmly when dry. Be sure the poison is well applied at the proper time. Repeat this in like manner with the other wing, F to W and W to X. Many skin the wing from W to the tip beyond X. This can be done by starting the skin by pressing firmly at the point W, side towards the quills. When it starts it can easily be skinned the rest of the way. I do not as a rule do this; it sometimes displaces the wing feathers so that it takes time to make them smooth. In large birds I only clean the bone to W, and after the bird is all skinned and turned back, I open the wing on the outside under part from W to X, remove meat, poison and sew up the cut.

The skinning is now completed. Poison by brushing dry preservative over all the parts (flesh side) with the rabbit's foot. For large birds use arsenical soap. Fill the eye cavity in the skull with cotton, about as full as when the eye was in. Your skin is now completely inside out. To turn it begin by pressing the skull back, exactly the reverse of skinning it. When in far enough so that the bill can be taken hold of from the outside, do so and work it firmly and carefully till drawn through. In the same way handle the wings and legs [leg bone being drawn out to poison]. Run your forceps in the eye holes and lift the skin from the skull. Round the eye holes out, smooth the feathers, brush them with your rabbit's foot; sometimes lifting the bird by the bill and shaking gently helps. Lay the bird on its back; take the two wing bones E and F, and tie them with thread about the same distance apart as they would naturally be. [Fig. 6.] If in skinning you are interrupted before you have time to turn the skin, and it gets dry before you resume, wet the inside carefully with water applied with a small brush. Do not use too much so as to wet the feathers. This will in a minute soften the skin. It could not be turned without doing it. When soap is used the skin does not dry as quickly as with the powder. Your skin is now done.

I will repeat the points in a more condensed form, hoping to avoid the confusion which frequently results from attempting to follow a receipt or rule.

IN BRIEF.

Lay bird on back.

Replace the cotton in throat and beak.

Part feathers and cut from breast to vent.

Cut leg joints and skin legs.

Bend tail over back and cut vertebra severing tail from body.

Skin body to wings.

Cut wings from body.

Skin to skull and over it.

Draw out ears and cut away from eyes.

Skin to bill.

Take out eyes.

Cut off skull.

Sever body, drawing tongue with it.

Clean out brain.

Clean wing bones.

Poison skin.

Fill eye sockets with cotton.

Turn skin.

Tie wing bones.

VARIATIONS.

Fig. 7.—With hardly an exception, if the bird is fresh the skin can be turned over the skull. There are, however, some cases where the skull is large and the neck small, such as in Ducks and Woodpeckers. If it is a bad case or the feathers are inclined to start, when you have skinned the skull cut off the body at the neck, complete skinning (except head) and poison, turn skin. From the outside make a cut in the skin from the top of the head, about between the eyes to just below the skull, O . . . O, draw out skull through this opening, clean in manner previously described, put skull back and sew up cut from the outside. Avoid this if possible, as it causes considerable extra work to make as smooth as when done in the other way. Never do it to a Flicker as the head can always be turned. I seldom do it to a Wood Duck. Many assist the process by cutting away part of the skull before skinning it, (skinning till it is exposed); also by crushing the skull. It is however done at the risk of hurting the feathers. Good perseverance is better.

TIME REQUIRED.

I receive many letters asking how long it should take to skin certain birds. Well, it depends on the nature of the workman. All horses cannot trot inside of three minutes. At a rough estimate I should say, under favorable circumstances:

Canary, quick, 5 minutes; slow, 10 minutes.

Flicker, " 8 " " 15 "

Pigeon, " 12 " " 20 "

Eagle, 1 hour.

Hawks and Ducks, 20 to 40 minutes.

I have seen Terns skinned, poisoned and turned ready to stuff, in less than three minutes.

Our skin is now ready to stuff or mount. We can do it at once, or if it is not convenient, it may be put away in a damp or sweat box. Your

patience, perhaps, being now taxed, we will make our sweat box. Take a pine box say 12 inches deep, 12 inches wide and 24 inches long. Fill it to depth of 5 inches with sawdust. This we will wet thoroughly, not so that the sawdust will float, but next door to it. Place this on the cellar bottom, lay our skin on the sawdust, cover the box with wet carpet, (not so wet as to drip) place the cover over the carpet. Our skin will keep in this way from two to five days, and sometimes longer, fresh and soft. This is the same box we shall use in softening up dried skins. In it we place our skin and take a rest.

The Rose-breasted Grosbeak.

(*Zamelodia ludoviciana.*)

BY C. F. CARR, MADISON, WIS.

This fine representative of its family is now one of the common birds of Waupaca County, Wisconsin. A few years back, it was comparatively rare.

In September, 1878, I captured my first specimen, it was, however, mutilated beyond preservation, as I was within ten feet of it when I shot. I could only find a part of the rose breast and a small portion of its head, but ample enough for identification beyond a doubt. For two years after I only saw it occasionally during the migrations. Then I was absent during the next two years, but upon my return I found it quite common about the streets and borders of the villages, even nesting in the shrubbery in the door-yards.

The farmers in that vicinity call it the "Pea Bird" on account of its destroying green peas, and about the village gardens it soon ruins a "patch" of peas. It tears open the pods and takes out part of the peas. If it would make clean work of it, it would have a better reputation, but it scarcely ever takes more than one or two peas from one pod, and then goes to the next, and so on from day to day.

It generally visits the gardens early in the morning before the people are about, nor does the old time "scare crow" frighten it away. After the first morning it generally takes stones and "clubs." We added a number of fine specimens to our cabinet by watching a small "pea patch" that we cultivated, until the neighbors complained at being awakened from their morning slumber by the report of a gun, and threatened to enforce the law. I have always found its nest in a slender sapling situated from six to twelve feet from the ground. Both nest and eggs are too well known to merit description here.

Catalogue of the Birds of Kalamazoo County, Michigan.

BY DR. MORRIS GIBBS.—PART X.

214. [617.] *Ethya callisneria* (Wils.) Boie. Canvas-back. A straggler from the great lakes; occasionally taken on our small inland lakes. A very strong flyer and early taken. Usually associates with the Redhead while here. Taken late in the Fall.

215. [618.] *Ethya americana* (Eyt.) Bp. Redhead. Abundant transient. Common about April 15th and November 1st. Observed from April 2d to 19th, and from October 28th to November 19th. Never summers.

216. [620.] *Clangula glaucium americana* (Bp.) Ridgw. American Golden-eye. A rare species in Spring and Fall, but often quite common in December and February, occasionally throughout the Winter months, when the river is open in spots. A very hardy species, usually leaving us in early March and not appearing till very late Fall. Much like *H. glacialis* in its habits and times of visitations.

217. [621.] *Clangula albeola* (Linn.) Steph. Butterball; Bufflehead. A very common species. Arrives in Spring before ice is gone and remains for a month or more in small flocks or pairs. Again appears in Fall about September 20th, and remains frequently until November 20th, and occasionally much later. A tough, swift-flying Duck and hard to kill from its skill in diving.

218. [623] *Harelda glacialis* (Linn.) Leach. Long-tailed Duck; Old Squaw. A rare Winter straggler, only twice observed to my knowledge. A flock appeared the 14th and 24th of last February, and a few specimens were taken. Only appears from the north during severe weather and when the streams are nearly all frozen over. While here the thermometer registered 26° to 30° below zero,

219. [631.] *Melanetta fusca* (Linn.) Boie. Velvet Scoter. Once taken by Mr. Syke. A rare transient.

220. [634.] *Eristamvura rubida* (Wills.) Bp. Ruddy Duck. A very common but rather irregular migrant. Have not often met with it in the Spring, but it is exceedingly abundant some Falls. Keeps in large flocks. The birds dive well and are difficult to hit and afterwards to bag. It arrives in early April and is never common during Spring migration to my knowledge. Have seen it as late as April 14th. It again appears about October 15th and becomes abundant by Novem-

ber first, and is observed after the last of the month. A hardy species. Never summers here.

221. [636.] *Mergus merganser americanus* (Cass.) Ridgw. American Sheldrake. I have observed this bird every month of the year excepting June, July and August. It may nest here, as it certainly does less than fifty miles north, but I have failed to prove it. It frequents open streams in Winter, and appears at home in our ice-cold rivers in January. Is quite abundant in early April and November.

222. [637.] *Mergus serrator* Linn. Red-breasted Sheldrake. A rare and irregular migrant. Not often taken.

223. [638.] *Lophodytes cucullatus* (Linn.) Reich. Hooded Sheldrake. An irregular migrant. Occasionally abundant during Spring and Fall. Appears more often on our rivers than on the lakes. Arrives the first week in April. A very handsome bird, but not good for the table by any ordinary course of cooking.

224. [666a.] *Larus argentatus smithsonianus* Coues. American Herring Gull. Common during Spring migration, when considerable numbers are seen feeding around the edges of the lakes on the ice. Not so many seen in the Autumn. Observed in February some seasons, although generally seen first in March. Remains until May first in some instances. Appears in late September and remains for a month in pairs or singly.

225. [675.] *Larus philadelphicus* (Ord.) Gray. Bonaparte's Gull. A rather rare species, occasionally taken around our inland lakes. Never summers.

226. [686.] *Sterna fuscicollis* Naum. Common Tern. A rare straggler. In May 1884, about the middle of the month, fifty or more appeared at Long Lake, where they had never been seen before. They all left soon after. On the 24th of the month two more were seen, one of which was shot.

227. [732.] *Dytes auritus* (Linn.) Ridgw. Horned Grebe. A rare transient, only a few times captured during Spring and Autumn. Found on our lakes and ponds, and like the next, an expert diver. Have seen it as late as June 1st, once.

228. [735.] *Podilymbus podiceps* (Linn.) Lawr. Thick-billed Grebe; Common Grebe; Dabchick; Hell Diver; Carolina Grebe. A very abundant species Spring and Autumn, arriving as early as March 10th some seasons. Remains as late as May 20th in some numbers. A few remain to breed, but I have never taken the eggs, although they have been taken in an adjoining county. Remains until Nov. 1st, generally; sometimes until December 20th.

229. [736.] *Colymbus torquatus* Brunn. Loon.

A common resident from April 1st to Nov. 1st. Often arrives in February in open Winters, and remains till Christmas some years. Nest, laying two large eggs, which are laid in a roughly formed hollow on a bog well out from shore.

230. [740.] *Colymbus septentrionalis* Linn. Red-throated Diver. Almost a yearly visitor to our rivers. Have never observed them later than April 25th. Only remain so late after severe Winters and the streams are frozen to the north. Usually appear in January or early February, and remain until March 20th. Never seen on the lakes and ponds to my knowledge. Nearly always seen in flocks of five to ten, sometimes more. A swift flyer and very wary.

This concludes the list of Kalamazoo County birds. If any of the readers detect errors, it will be considered a favor by the writer if corrections are offered. As new species are added to this catalogue the same will be presented through the columns of the O. and O. G.

Sketches from Terrebonne Parish, Louisiana.

BY E. C. W.

A pair of Little Screech Owls, last Spring, made their residence in my Pigeon house. I visited the house April 6th, and, as I looked through the door, perceived a pair of yellow eyes staring at me from the darkness within. I removed their owner, a female Little Screech Owl, who was complacently sitting in a Pigeon's nest. I liberated her, and appropriated the eggs—the usual complement of four.

Those versatile songsters, the Mockingbirds, build their nests in forest, field and town, at altitudes between two and fifteen feet. The Mockingbird's breeding season begins about the 15th of March, but this year, owing to a late Spring, I did not observe a clutch of eggs until April 6th.

Contemporary with the Mockingbirds in season of breeding are the House Wrens. I observed the first completely fledged young of this species this year on the 9th of April. These Wrens breed here in profusion; and they are not particular as to where they build their nests, for I have found them breeding in woodland stumps, mortices in fence posts, old cattle skulls, and two of my friends, not given to oological inquiry, have found a nest apiece in the pockets of their respective coats which hung, unused, on pegs in their rooms.

The Maryland Yellowthroat, that vivacious little member of our avi-fauna, finds the black-

berry bushes a secure place to fix its nest in. A walk through a patch of berry bushes in April, May and June, before the berry pickers are abroad, will certainly startle some from their briery retreat. Make an opening in the side of this dome-shaped berry bush from whence our bird has flown, and there—surely, if that is not a pretty nest, and if our bird has no idea of aesthetics, it is capable of accidentally arriving at wonderful results in the harmonious arrangement of forms and colors.

The Purple Martins, every year, take possession as a habitation, of the projecting ledges of the capitals, over the columns, of the court house gallery, in the town of Houma. Here, every season, two or three successive broods of young are raised by each pair. Sometimes the town boys of the neighborhood wickedly assault them with missiles; but the space between the ledges and the gallery ceiling being only four or five inches, the nests do not suffer much damage. Those who esteem the Martins here, every Spring prepare gourds and erect them on poles, which are readily occupied.

The Blue Yellow-backed Warbler and the Blue-gray Gnatcatcher are two species of our principal breeding birds; but their nests are difficult to discover on account of the exuberance of moss and foliage of our trees, amongst which these birds breed.

Least Bitterns are very numerous in our swamps and bayous. They are commonly known here by the less euphonious name of Cap Cap. While inspecting a deserted Heronry last May, I started a Least Bittern from one of the old nests. I examined the nest and found therein four of eggs.

Purple Gallinules breed among the rushes of our bayous and swamps, principally during May and June. The young of this beautiful aquatic bird, when unfledged, resemble young turkeys. They follow their mother, walking on the grassy surface of the water, in her wanderings in search of crayfish, snails, etc.

A pair of Yellow-billed Cuckoos built a nest in our orchard last July. This nest—a lining of moss resting on a few sticks—was situated in the topmost fork of a Fig tree branch, eleven feet from the ground. Alas! the luscious figs that studded every branch of the tree, even immediately over the Cuckoo's nest, began ripening before the female had finished depositing her eggs, and the frequent visits we paid the tree in search of fruit caused the luckless pair to abandon their nest, leaving two eggs at our mercy.

Song of the Golden-crowned Thrush.

(*Siurus auricapillus*.)

DR. MORRIS GIBBS, IN *Forest and Stream*.

The song of this species has been but little described by writers; in fact it is only within the last few years that mention has been made of its best musical efforts. The common, loud clanking notes so often heard, have been listened to by all collectors, but a superior strain, only occasionally uttered apparently, has been listened to by but few intelligently. I think it safe to say that no bird among us which is so well known has eluded the describers of bird songs as this one has done. I listened to the true song of the Oven Bird in 1880 for the first time, and before I had read of its discovery by any writer. The first burst of melody reached me in a dense piece of low woods filled with underbrush, in Montcalm county, in May, and the delightful notes were surprising and doubly pleasing to me in such a location. To describe the notes would be next to impossible. It is more difficult than the songs of the Warbling Vireo and Tanager, and with more dash and harmony if it is possible. At first on hearing the notes the idea presented itself that a species new to me was singing, and my extreme care in reaching the glade in hopes of a shot was what secured me a chance of witnessing a most singular performance. Carefully crawling through the almost impenetrable growth of small saplings and brush, I came at last to a partial clearing over which a bird, apparently in the highest transports of joy, was fluttering in irregular flight. It is not surprising that I failed to recognize the bird in its decidedly unusual performance, for there was not one point in which it resembled itself in ordinary habits, and the specimen would have been shot at once in my eagerness to add a new bird to my collection had I not observed another bird, undoubtedly its mate, perched on the ground near, and which appeared to be a Golden-crowned Thrush and the centre of attraction to the delightful warbler overhead. Never had I heard the song before, and never have I witnessed such a scene. This was indeed making love with a spirit which I had never witnessed among our birds before. The song was almost continuous, and with an occasional interruption to the new song by the common chattering notes so well known and described by Coues as a "harsh crescendo," the notes were all of the most melodious description. The energetic unconscious fellow was meanwhile constantly flying about above his innamorata, describing every form of flight except that of regu-

lar sailing; first dashing through space to the edge of the glade, which was probably twenty feet across; then rising to the tops of the bushes, he would half flutter, half fall towards his prospective mate. On a sudden he would flutter directly upward as we often see the English Sparrow or House Wren do, and reaching a height of twenty feet or more, dash about the clearing in varying circles, ever tending in his flight toward the object of his extravagant attention. She in the meanwhile sat silent and evidently interested in the performance. Suddenly the male dropped beside her, and alternately dashing and wheeling about, but continually on the move and always revolving about her, gave evidence of his adoration by a series of hops, dignified struts, droopings of the head and tail, elevation of the wings and crest, which would have done credit to both the Turkey and the Ruffed Grouse. While on the ground the song was kept up with the usual vigor, but the interruption by the coarser, common notes was more frequent and the bird stopped in its struts in order to utter the notes which apparently caused him more effort than did the more beautiful song. The appearance of a third party on the scene, probably also a lover, caused the first performer to dash into the brush much to my disappointment.

That the love-song is not common is evident to all, and the very fact of its having remained so long unknown is proof of its rarity. After my first experience I watched continually for the beautiful song, but did not hear it until the following year, although the woods were filled with the common notes. The following Spring, while sitting at the roots of a gigantic elm, a female of this species fluttered near, carrying material in her beak, evidently intended for nest construction. While watching her, the male suddenly made his appearance, and the scene of the previous year and with, I think, superior musical performance, was enacted in my presence. However, in this instance the male rarely descended to the ground, evidently being fully mated and not considering it necessary to strut about after securing his partner to the extent of nest construction being in progress. Since that time I have never heard the song, although a thousand chatters have reached my ears.

Mr. A. W. Butler, Corresponding Secretary of the Brookville Society of Natural History, Indiana, sends us a circular calling a meeting at Indianapolis on December 29th, at which a statement of the present condition of each branch of Science that is being studied within the borders of the State, is to be given, for the purpose of interesting the people in the proposed State Academy of Science. Mr. Butler is to present a paper on Ornithology.

Boston Notes.

Up to the present time the story of the past has been repeating itself—business dull and game scarce.

During August an unusual number of Great Blue Herons were brought in, also the first Owls of the season, a pair of Barred in the down, we should judge citizens of this State. These were followed by a few Great Horned. In September considerable excitement was reported in a neighboring town, over a Leather-backed Turtle that had fallen into the hands of one of the craft. He describes it as measuring about seven feet in length of shell; the flippers four feet. It weighed 800 pounds. As it stands stuffed—the extreme length would be about twelve feet. His statement of the number of barrels of meat that he took from it almost seemed an exaggeration. It was captured off the coast. Towards the last of October it was whispered that an old friend had appeared, and another of the same family a few days later confirmed it, and by the 12th of November we recorded seven Snowy Owls as arriving at Boston; all, as near as I can ascertain, being killed in this State.

We received our first Hawk Owl, November 9th, from Maine. In August we made our first acquaintance with the American Porcupine. They are reported quite plentiful a few hours travel north of us, and it seems strange that we do not see them more often.

Moose, for an animal that is considered nearly exterminated, seems to have favored some of our Boston sportsmen. One gentleman reported seeing twenty-three, and from the specimen, whose head he secured, we think he took decided advantage of the situation. Several others returned with fine trophies in the way of horns.

The weather has been very mild, and we look forward to a good cold snap to help us to other items of interest for our next.—F. B. W.

CORRESPONDENCE.

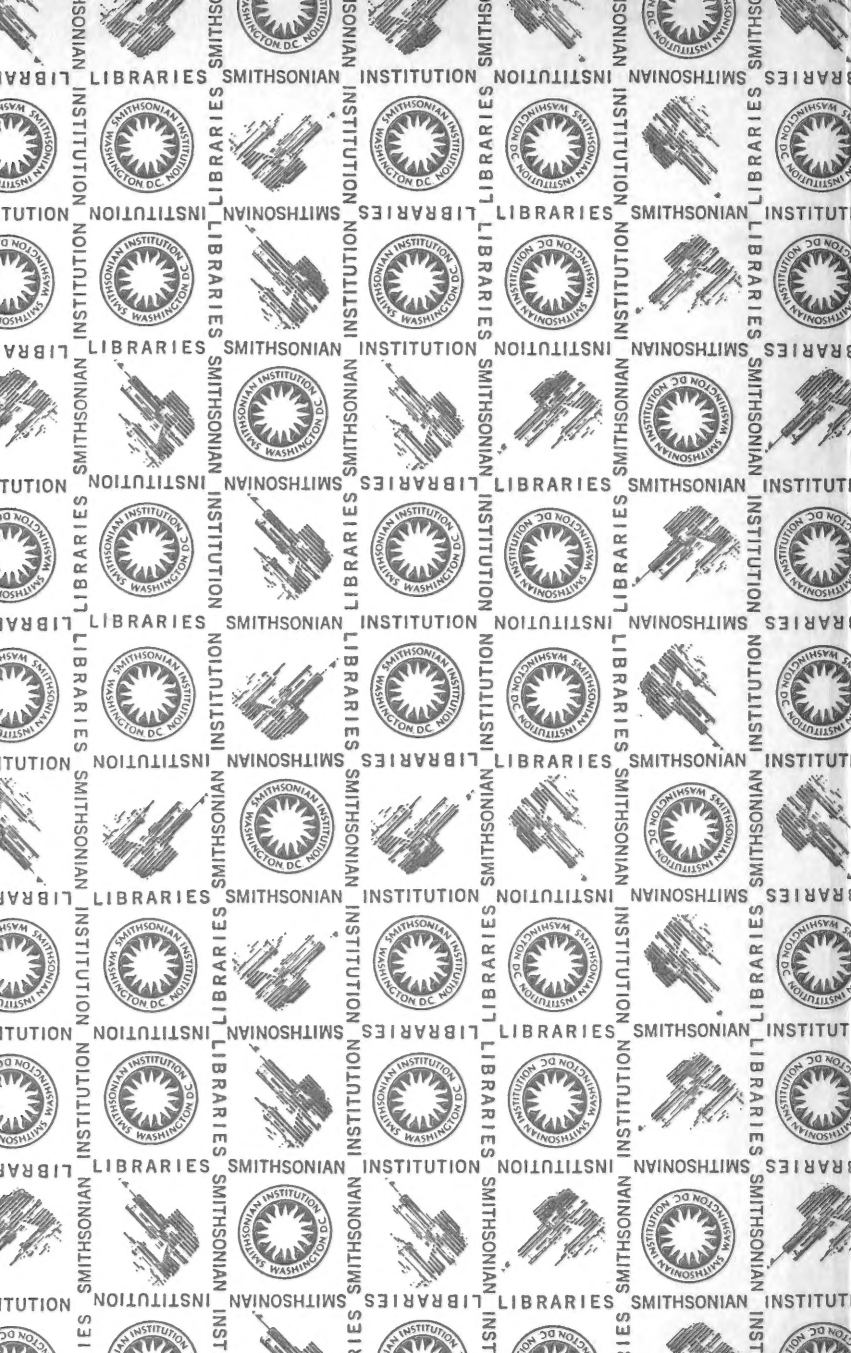
H. E. S., Cuba, N. Y.—The first bird you describe is the Cedar Bird. The next, you will have to be more definite. In measuring eggs, 1.04x.89 would mean: Long diameter 1.4-1.00 of an inch, and the other the short diameter—widest distance from side to side.

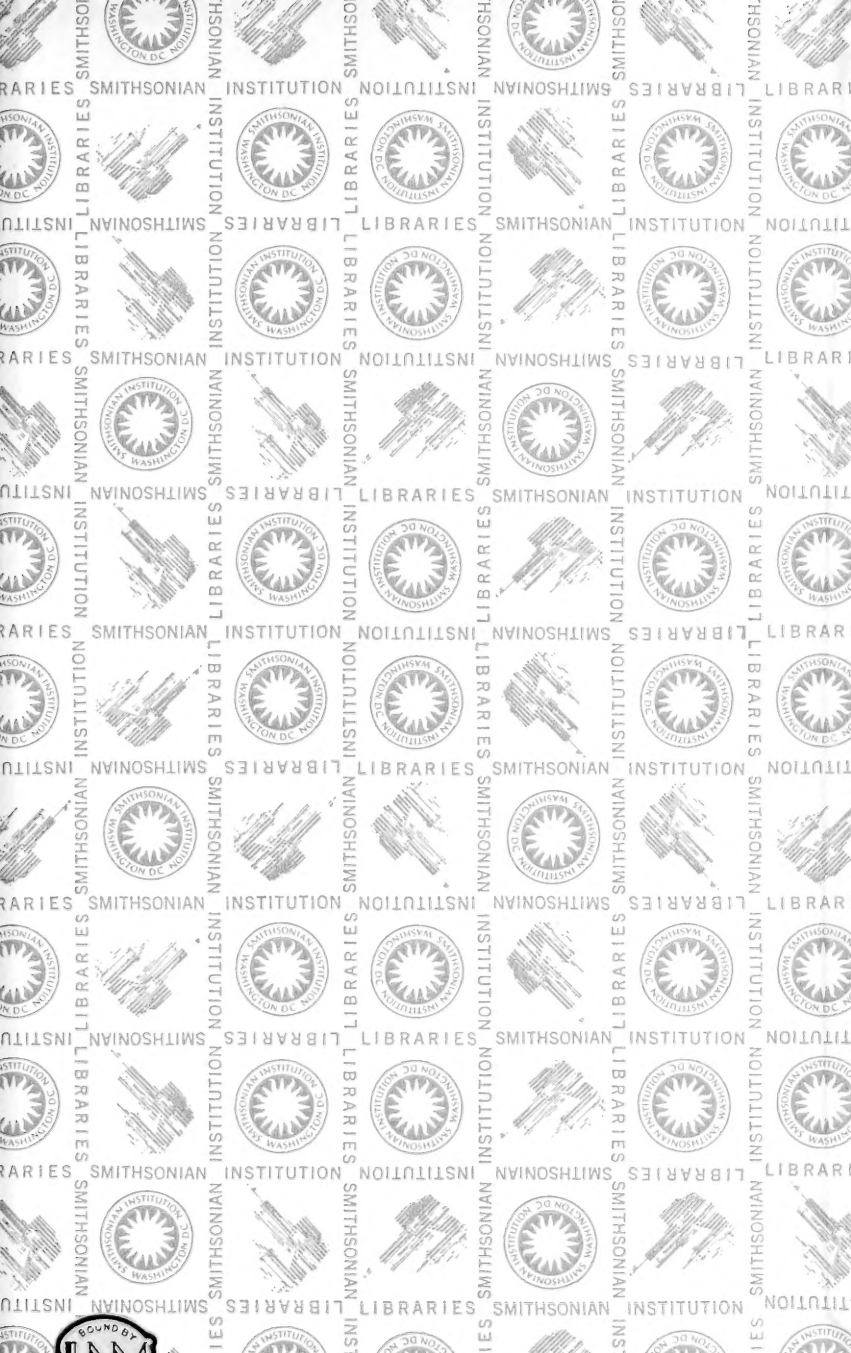
W. B. Hull, Milwaukee, Wis.—Your bird is no doubt an Evening Grosbeak, (*Hesperiphona vespertina*), No. 163 in Smithsonian Catalogue. We are not aware of any more common name. It is migratory, and common in western United States.

RECEIVED: Ellwood C. Erdis; C. H. Andres. These will appear in January.

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